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Demand for Canadian Newsprint Heavy

Survey By Newsprint Association of Canada Concludes Canada's Mills Will Be Called Upon To Supply 3,575,000 Tons of Newsprint For 1940—Mill Capacity Believed Ample To Meet Demand.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 27, 1940—The Newsprint Association of Canada, in a survey of newsprint in many markets, draws the conclusion that Canada will be called upon this year to supply 3,575,000 tons of newsprint out of a rated capacity of 4,368,000 tons, as compared with a production in 1939 of 2,861,202 tons. The Association summarizes the statistical position as follows:

Statistical Position of Newsprint

(1) World demand for newsprint in 1940 will be materially reduced to about 6,575,000 tons, compared with 7,714,000 in 1939 and 8,972,000 in 1937.

(2) World Supply will show an even sharper reduction. Maximum available supply is estimated at 6,750,000 tons out of a world rated capacity of about 10,400,000 tons.

(3) A world demand of 6,575,000 tons will require an export-import movement of about 4,000,000 tons. About 85 per cent of this must be supplied by Canadian mills, and about 92 per cent or 93 per cent by Canada and Newfoundland combined.

(4) It is estimated that Canadian mills will be called upon to supply about 3,575,000 tons in 1940, of which 3,365,000 tons will be for export, leaving some 210,000 tons for home consumption. About 2,750,000 tons will probably be needed for United States customers.

(5) Canadian mills seem able to supply the estimated 3,575,000 tons with a slight margin to spare.

Maximum possible supply by Canadian mills in 1940 is estimated as 3,750,000 tons out of a rated capacity of 4,368,000 tons. About 450,000 tons of possible production were lost in the first four months of the year, due chiefly to lack of orders. There will be a further unavoidable loss of about 160,000 tons in the remaining eight months due to certain machines not being available for immediate production and due also to ordinary operating contingencies. The apparent margin of 175,000 tons should prove adequate provided all mills and their customers co-operate if necessary precautions are taken.

Regarding the ability of the Canadian mills to meet the anticipated demand of 3,575,000 tons, the Association says that in the first four months of 1940, Canada has produced 1,003,081 tons. In the remaining eight months of 1940, the Canadian mills have a total rated capacity of 2,916,500 tons, but not all of this is available for immediate operation. Maximum possible production in the final eight months is estimated to be about 2,750,000 tons.

Allowing for maintenance of present normal mill stocks, the maximum available supply from Canadian mills in 1940 is estimated as about 3,750,000 tons, compared with the estimated need of 3,575 tons.

To deliver 3,575,000 tons in 1940, the Canadian mills would need to ship at a total industry average of 81.7 per cent of capacity for the whole year and at 89.5 per cent throughout the final eight months. The mills now under governmental prorating in Ontario and Quebec would need to ship at slightly over 75 per cent for the year ended at 82 to 84 per cent throughout the final eight months.

Wage Demand on I. P. Postponed

GLENS FALLS, N. Y., May 27, 1940—The International Paper Company has been granted an extension of time relative to demands for a wage increase of five cents an hour and a week's vacation with pay sought by labor unions. The company contends that its position is uncertain because of conditions in Europe but the demands will be renewed in August. Company officials and representatives of the unions held a meeting this week at the offices in South Glens Falls following which an official stated that it was agreed to postpone any action relative to the existing labor agreement until a later date. Union delegates representing the employees were present at the meeting from the company's mills at Orono, Me.; Livermore Falls, Me.; Niagara Falls, N. Y.; North Tonawanda, N. Y.; Fort Edward, N. Y.; and Palmer, N. Y.

Selection of a hospitalization plan for employees of the Fort Edward branch of the International Paper Company is expected to be made at a meeting this week when an official of the Metropolitan Life Insurance Company will attend and present the various forms. The plan was discussed by the employees recently but it was decided to postpone action.

Printing Committee Lets Paper Contracts

Contracts Are Awarded Monday of This Week For Supplying the Government Printing Office With A Wide Variety of Paper For the Six Months Period Beginning July 1—List of Successful Bidders and Prices.

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 27, 1940—Awards were announced today by the Joint Congressional Committee on Printing for paper for the use of the Government Printing Office for the six months period beginning July 1. Bids were opened on May 27. The awards were as follows:

No. 1, National Pulp and Paper Company, Inc., 2.55 cents (396,000 pounds only). Paper Corp. of U. S. (remainder), 3.23 cents.

No. 3, Whitaker Paper Company, 5.51 cents.

No. 4, Whitaker Paper Company, 5.36 cents.

No. 5, Whitaker Paper Company, 5.26 cents.

No. 6, Mudge Paper Company, 4.955 cents.

No. 7, Mudge Paper Company, 4.955 cents.

No. 8, Mudge Paper Company, 4.955 cents.

No. 9, Mudge Paper Company, 4.955 cents.

No. 10, Mudge Paper Company, 5.40 cents.

No. 11, R. P. Andrews Paper Company, 5.33 cents.

No. 12, Stanford Paper Company, 5.09 cents.

No. 13, R. P. Andrews Paper Company, 5.56 cents.

No. 14, Stanford Paper Company, 12.50 cents (70 lb.) and 12.50 cents (100 lbs.)

No. 15, R. P. Andrews Paper Company, 6.21 cents.

No. 16, Stanford Paper Company, 5.55 cents.

No. 17, Stanford Paper Company, 4.84 cents.

No. 18, Stanford Paper Company, 6.81 cents.

No. 19, Old Dominion Paper Company, 13.67 cents.

No. 20, Old Dominion Paper Company, 10.26 cents.

No. 21, Old Dominion Paper Company, 10.26 cents.

No. 22, Old Dominion Paper Company, 10.26 cents.

No. 23, R. P. Andrews Paper Company, 11.97 cents.

No. 24, Lee Paper Company, 18.00 cents.

No. 25, Lee Paper Company, 17.50 cents.

No. 26, R. P. Andrews Paper Company, 5.52 cents.

No. 27, R. P. Andrews Paper Company, 5.38 cents.

No. 28, R. P. Andrews Paper Company, 5.32 cents.

No. 29, R. P. Andrews Paper Company, 5.14 cents.

No. 30, Mudge Paper Company, 4.742 cents (for 300,000 pounds only) R. P. Andrews Paper Company, 4.98 cents (Remainder).

No. 30, Mudge Paper Company, 4.69 cents (for 300,000 pounds only) R. P. Andrews Paper Company, 4.98 cents (Remainder).

No. 36, Whitaker Paper Company, 7.03 cents.

No. 37, Stanford Paper Company, 14.25 cents.

No. 40, Mudge Paper Company, 10.26 cents.

No. 43, Whitaker Paper Company, 4.63 cents.

No. 44, Stanford Paper Company, 6.44 cents.

No. 47, Aetna Paper Company, 7.877 cents (for 1,250 tons) Old Dominion Paper Company, 7.96 cents (for 1,250 tons).

No. 51, R. P. Andrews Paper Company, 11.34 cents.

No. 52, R. P. Andrews Paper Company, 10.35 cents (white); 11.20 cents (blue).

No. 53, Whitaker Paper Company, 11.95 cents.

No. 54, R. P. Andrews Paper Company, 6.27 cents.

No. 55, Whitaker Paper Company, 5.10 cents.

No. 56, Whitaker Paper Company, 4.95 cents.

No. 57, R. P. Andrews Paper Company, 5.62 cents.

No. 58, Whitaker Paper Company, 4.51 cents.

No. 59, Perkins Goodwin Company, 5.14 cents.

No. 60, R. P. Andrews Paper Company, 6.57 cents.

No. 61, Cauthorne Paper Company, Inc., 7.21 cents.

No. 62, R. P. Andrews Paper Company, 5.83 cents.

No. 63, Stanford Paper Company, 20.60 cents.

No. 64, No bids.

No. 65, Mathers-Lamm Paper Company, 10.66 cents.

No. 66, Mudge Paper Company, 12.21 cents.

No. 67, Mudge Paper Company, 12.01 cents.

No. 69, Barton, Duer & Koch Paper Company, 16.70 cents (for 150,000 pounds only) 17.20 cents (for remainder).

No. 70, Bids rejected.

No. 71, Bids rejected.

No. 73, Marquette Paper Co., 16.40 cents.

No. 74, Mudge Paper Company, 12.63 cents (for 300,000 pounds only) Stanford Paper Company, 12.25 cents (for 400,000 pounds).

No. 75, Marquette Paper Company, 17.90 cents.

No. 76, Stanford Paper Company, 13.62 cents.

No. 78, R. P. Andrews Paper Company, 26.37 cents.

No. 79, Old Dominion Paper Company, 21.7428 cents.

No. 83, Barton, Duer & Koch Paper Company, 14.68 cents (100,000 pounds), 15.68 cents (Remainder).

No. 102, R. P. Andrews Paper Company, 6.09 cents.

No. 109, Stanford Paper Company, 10.37 cents.

No. 110, Virginia Paper Company, 9.55 cents.

No. 111, Butler Company, 8.39 cents.

No. 112, Aetna Paper Company, 8.487 cents (250 tons); 9.447 cents (Remainder).

No. 113, R. P. Andrews Paper Company, 8.57 cents.

No. 114, Aetna Paper Company, 11.467 cents.

No. 115, Aetna Paper Company, 9.747 cents.

No. 116, Aetna Paper Company, 8.497 cents.

No. 117, Aetna Paper Company, 9.687 cents.

No. 120, R. P. Andrews Paper Company, 11.57 cents.

No. 121, R. P. Andrews Paper Company, 8.97 cents (150 tons); 9.47 cents (150 tons).
No. 122, R. P. Andrews Paper Company, 8.87 cents.
No. 123, Barton, Duer & Koch Paper Company, 13.25 cents.
No. 125, Stanford Paper Company, 20.25 cents.
No. 126, Stanford Paper Company, 17.65 cents.
No. 128, Stanford Paper Company, 19.29 cents.
No. 129, Stanford Paper Company, 19.29 cents.
No. 140, Stanford Paper Company, 23.65 cents.
No. 141, Stanford Paper Company, 19.88 cents.
No. 151, Stanford Paper Company, 5.55 cents.
No. 152, Stanford Paper Company, 5.55 cents.
No. 154, Mathers-Lamm Paper Company, 8.98 cents.
No. 155, Mathers-Lamm Paper Company, 9.20 cents.
No. 156, Mathers-Lamm Paper Company, 9.20 cents.
No. 157, Aetna Paper Company, 11.877 cents.
No. 160, Baxter Paper Company, 9.27 cents.
No. 161, Baxter Paper Company, 9.33 cents.
No. 162, Baxter Paper Company, 9.79 cents.
No. 163, Mudge Paper Company, 9.93 cents.
No. 164, Baxter Paper Company, 9.87 cents.
No. 165, Mudge Paper Company, 10.31 cents.
No. 168, Barton, Duer and Koch Paper Company, 14.20 cents.
No. 169, Barton, Duer and Koch Paper Company, 14.20 cents.
No. 170, Barton, Duer and Koch Paper Company, 14.20 cents.
No. 171, Barton, Duer and Koch Paper Company, 14.20 cents.
No. 172, Stanford Paper Company, 15.60 cents.
No. 173, Stanford Paper Company, 15.60 cents.
No. 176, Barton, Duer and Koch Paper Company, 18.62 cents.
No. 177, Barton, Duer and Koch Paper Company, 18.62 cents.
No. 178, Barton, Duer and Koch Paper Company, 18.62 cents.
No. 179, Barton, Duer and Koch Paper Company, 18.62 cents.
No. 180, Barton, Duer and Koch Paper Company, 18.62 cents.
No. 181, Barton, Duer and Koch Paper Company, 18.62 cents.
No. 184, Stanford Paper Company, 5.24 cents.
No. 190, Marquette Paper Company, 8.22 cents.
No. 191, Barton, Duer and Koch Paper Company, 13.25 cents.
No. 192, Marquette Paper Company, 8.22 cents.
No. 193, Barton, Duer and Koch Paper Company, 13.35 cents.
No. 196, Barton, Duer and Koch Paper Company, 16.96 cents.
No. 197, L. Hyman and Sons, 12.36 cents.
No. 198, No bids.
No. 201, Whitaker Paper Company, 7.37 cents.
No. 202, Whitaker Paper Company, 7.67 cents (India), 8.37 cents (light green), 8.75 cents (emerald).
No. 203, Marquette Paper Company, 7.37 cents.
No. 204, Marquette Paper Company, 7.37 cents.
No. 205, Lee Paper Company, 10.79 cents.
No. 209, Paper Corporation of U. S., 4.39 cents.
No. 210, Paper Corporation of U. S., 4.20 cents.
No. 211, Paper Corporation of U. S., 5.25 cents.
No. 213, Mathers-Lamm Paper Company, 16.48 cents.
No. 214, R. P. Andrews Paper Company, 15.90 cents.
No. 215, Mathers-Lamm Paper Company, 16.48 cents.
No. 217, R. P. Andrews Paper Company, 4.65 cents.
No. 218, R. P. Andrews Paper Company, 4.65 cents.
No. 219, R. P. Andrews Paper Company, 4.41 cents.
No. 220, Paper Corporation of U. S., 6.00 cents.
No. 251, Mathers-Lamm Paper Company, 12.07 cents.
No. 252, Whitaker Paper Company, $11.40 per M sheets.
No. 254, Mudge Paper Company, 5.76 cents.
No. 255, Barton, Duer and Koch Paper Company, 6.20 cents.
No. 256, Mudge Paper Company, 6.68 cents.
No. 257, Mudge Paper Company, 7.26 cents.
No. 258, Mathers-Lamm Paper Company, 5.88 cents.
No. 259, Mathers-Lamm Paper Company, 5.466 cents.
No. 260, Bids rejected.
No. 261, Bids rejected.
No. 262, Link Paper Company, 7.40 cents.
No. 263, Bids rejected.
No. 264, Mathers-Lamm Paper Company, 4.35 cents.
No. 265, Mudge Paper Company, 7.50 cents.
No. 271, R. P. Andrews Paper Company, 5.90 cents.
No. 276, Barton, Duer and Koch Paper Company, 8.00 cents.
No. 277, Barton, Duer and Koch Paper Company, 9.00 cents.
No. 280, Mathers-Lamm Paper Company, 8.79 cents.
No. 281, Paper Corporation of U. S., 4.74 cents.
No. 302, Stanford Paper Company, $22.59 per M sheets.
No. 303, Stanford Paper Company, $33.24 per M sheets.
No. 304, Stanford Paper Company, $44.89 per M sheets.
No. 305, Stanford Paper Company, $28.69 per M sheets.
No. 306, Old Dominion Paper Company, 4.6349 cents.
No. 307, Old Dominion Paper Company, 5.1348 cents.
No. 308, Old Dominion Paper Company, 4.9848 cents.
No. 309, Old Dominion Paper Company, 4.9848 cents.
No. 310, Old Dominion Paper Company, 4.9848 cents.
No. 325, R. P. Andrews Paper Company, 4.795 cents (1,500,000 pounds); Barton, Duer and Koch Paper Company, 4.77 cents (1,500,000 pounds).
No. 326, Whitaker Paper Company, 4.75 cents.
No. 351, Barton, Duer and Koch Paper Company, $6.32 per 100 sheets.

(Continued on page 39)

Fox River Safety Meeting Largely Attended

Paper Mills Represented At 13th Annual Conference At Marinette With More Than 1,000 Executives Present—Opposition To Wolf River Reservoir Project Developing — Ample Water For Mills — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 27, 1940—More than 1,000 executives and employees of industries attended the thirteenth annual Fox River Valley and Lake Shore Safety Conference at Marinette, Wis., Thursday of last week. Paper mills of Neenah, Menasha, Appleton, Kaukauna, Green Bay, Peshtigo and Marinette were liberally represented in the attendance.

General sessions were held in the morning, opening with an address by Voyta Wrabetz, chairman of the Wisconsin Industrial Commission, whose subject was "The Value of Industrial Conferences." He urged all mills to strive for the ultimate, a year without industrial accidents, pointing out that 85 per cent are caused through human failure, and that most of the causes could be eliminated.

Amos J. Germain, electronics expert for the Westinghouse Company in Chicago, spoke on the relationship of safety and electricity. A third speaker was Dr. A. J. Weber of Milwaukee, Wis., whose subject was "Back Injuries, Sprains and Infections." He emphasized the danger of minor injuries turning into serious ailments. Movies and talks also were given on traffic safety.

Sectional Meeting for Paper and Pulp Men

A sectional meeting was held in the afternoon for the paper and pulp mill delegates. The speakers were F. W. Johnson, Rhinelander Paper Company, Rhinelander, Wis., on "Accident Prevention Engineered to the Paper Mill," and W. P. Wamser, safety engineer for the Employers Mutual Liability Insurance Company, Wausau, Wis., on "Can We Convert the Convertors to Safety?" A Boy Scout demonstration of first aid also was given. An informal discussion followed.

The annual banquet was held in the evening in the gymnasium of the high school at Menominee, Mich., with arrangements handled by M. C. Dickoff, of the Southern Kraft Corporation, Marinette. The speaker was J. Dewey Dorsett, manager of the Association of Casualty and Surety Executives, New York City. His subject was "Our Common Cause in an Accident Prevention Crusade."

A meeting was held for industrial nurses at which Miss Norma Bornfield, R. N., of Southern Kraft Corporation presided.

Late in the afternoon, an outdoor demonstration was conducted by the Ansul Chemical Company of Marinette, showing the use of a new product, DuGas, for extinguishing gasoline, oil and building fires.

Opposition to Reservoir Project Looms

Further opposition is developing to the Wolf River reservoir project which will alleviate irregular water flow for paper mills of the Fox River Valley. The Wisconsin Conservation Commission has let it be known through H. W. MacKenzie, director, that it stands unalterably opposed to the reservoir, to be constructed at Lily, Wis. by the World River Reservoir Company.

The commission intends to argue against the project at a hearing at Antigo, Wis., June 12, on the company's application to build the dam creating the reservoir.

Ample Water for Wisconsin River Mills

Heavy spring rains have assured an adequate water power supply for paper mills of the Wisconsin River Valley for some time to come, and probably a uniform during the summer dry spell. The Wisconsin Valley Improvement Company, operating a series of reservoirs on the upper river, announced through W. E. Brooks, manager, that the water volume in storage increased 921,000,000 cubic feet in one week, when the average rainfall was recorded at 2.53 inches. The total gain in the entire system was 1,291,000,000 cubic feet. The Big Eau Pleine reservoir has 11,627,000,000 cubic feet of water available for power uses, against its total capacity of 14,966,000,000 cubic feet. The total available storage is now 8,591,000,000 cubic feet, as compared to 9,626,000,000 a year ago.

Commission Holds 187,000 Acres of Forests

Under its reforestation program, the Wisconsin Conservation Commission now has title to 187,000 acres of forest land, and the state land department holds in trust about 165,000 additional acres. Eight state forests are now maintained totalling 163,000 acres. These areas are additional to the vast federal forests in the state. Constant planting is being conducted against the day when paper mills will be looking for new sources of wood. Only selective cutting is being permitted so as to create a permanent supply.

Burstein To Build Warehouse

A new warehouse is to be constructed by Meyer Burstein and Son, Neenah, Wis., paper stock dealers. It will be of concrete, one story high, 65 x 100 feet in size, and the cost will be approximately $8,000. The building will be used for additional storage space.

F. J. Sensenbrenner Reelected

F. J. Sensenbrenner, president of Kimberly-Clark Corporation, was reelected a director of the Soo Line Railway at its annual meeting in Minneapolis, Minn. The line reported big gains in operating revenues and profits during the last year due to substantially increased traffic.

S. F. Shattuck Addresses Students

S. F. Shattuck, vice-president of Kimberly-Clark Corporation, spoke to the senior class of the Neenah, Wis. high school last week. The address was one of a series on employment. He gave the students valuable pointers on their personal development so as to make a success in life.

Paper Mills Affected By Increased Taxes

Quebec Government Strives To Improve Financial Position By Increased Taxes Including Doubling of Present 2½ Per Cent Corporation Tax—Prorating Newsprint Problem Will Be Discussed Soon At Conference.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., May 27, 1940—The Provincial Government of Quebec, which inherited heavy indebtedness from its predecessor, has just budgeted for a heavy increase in taxation with a view to bringing the provincial finances back to the position which they occupied for so many years, when they were on so sound a basis that the credit standing of the provinces was the highest in the Dominion, not excepting that of the federal government itself. Among the taxes increased is one that will affect the pulp and newsprint industry, as well as all other industries in the province, namely the doubling of the present 2½ per cent tax on corporation profits. In announcing this tax, the Provincial Treasurer said there would be no more discriminatory taxation on industry but that everything would be done that was possible to encourage enterprise. "Industries won't come to Quebec unless they are assured of fair and reasonable taxation," he said, adding "That assurance the Government is glad to give."

Objections Heard Against Tax

There has been some criticism of the increase in the corporation tax thus the Montreal Gazette says:

"Objections will be advanced, and validly advanced, against doubling the present two-and-a-half per cent tax on corporation profits. In this respect, Quebec is following a 'mislead' given by Ontario. Whilst the exigencies of the Quebec Treasury are readily acknowledged, it is to be regretted that, in fulfilment of his difficult task, the Provincial Treasurer did not find in the wide field open to exploration a line likely to be one of less resistance. A five per cent tax on gross profits is a very big exaction. After the provincial claim has been paid and other tax liabilities at the same source have been met, there will be little, if any, profit left. The heavier burden, therefore, is calculated to be prejudicial to business and industry in the province."

Newsprint Industry Supports Defense

The newsprint industry has taken the lead in announcing support of the tremendous defense program of the Federal Government in support of the Allies, entailing an expenditure for the current year of the unprecedented sum of $700,000,000. Following the announcement of this program the industry, through the Newsprint Association of Canada, sent the following telegram to members of the Federal Government:

"The newsprint industry of Canada by unanimous expression through its Association wishes to urge and support the application of Canada's maximum strength in manpower, money and machines for defeat of the enemy and for the safeguarding of this country against subversion. The industry believes that in this critical hour of British history nothing matters to Canadians in comparison with the urgent and dire necessities of war and that no other considerations should impede the fight for preservation. The Canadian newsprint manufacturers wish to renew the statement of attitude expressed last September and to have it known that they are ready, anxious and determined to support the Government of Canada by any means available to them in waging war to the limit of Canada's strength and resources."

"(Signed) CHARLES VINING.
President, Newsprint Association of Canada."

To Consider Newsprint Prorating Problems

There is every indication that at an early date the Quebec government will hold a conference with the government of Ontario regarding the problem of prorating production in newsprint mills. In a general way, prorating has prevailed for a long time, with certain notable exemptions, and it is the question of these exemptions which has raised a controversy over the subject. The three exemptions are the Ontario Paper Company which supplies its entire output to the owners, the Chicago Tribune and the New York Daily News; the Spruce Falls Power and Paper Company, owned in part by the New York Times, to which a large proportion of its output goes, and the Anglo-Canadian Pulp and Paper Mills, owned by the Rothermere group of English publishers.

At present the controversy centers around the Ontario Paper Company and in particular around that company's mill at Comeau Bay in Quebec, it being considered that if the principle is decided in this case it will automatically apply to the others.

Urges Prorating for All Mills

The majority of newsprint mills have petitioned that prorating should be made to apply to all mills, and the matter is now before the Quebec government, to which the Ontario Paper Company has submitted its case. The company says:

"If it is considered that proration is useful or necessary and that any revision of the present plan is desirable, it should not be seized upon as an excuse to commit an injustice for the benefit of the revisors, by attempting to extend its application to a non-commercial company whose mills were built to supply newsprint to its owners and which has never sold a ton of newsprint in the commercial fields."

Japan Issues Permits for Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 29, 1940—Prompted by the favorable export prospects for rayon and staple fibers, Japanese pulp importers early in 1940, reportedly approached the Department of Finance for permission to import about 200,000 tons of rayon pulp during the current year. They were advised to see how much pulp they could get from abroad. Ascertaining that they could not hope to secure any amount like 200,000 tons, they applied for permits covering 45,800 long tons. The Finance Ministry issued permits for this tonnage.

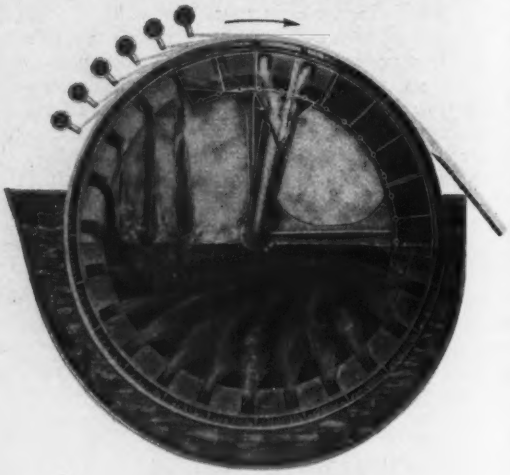
3

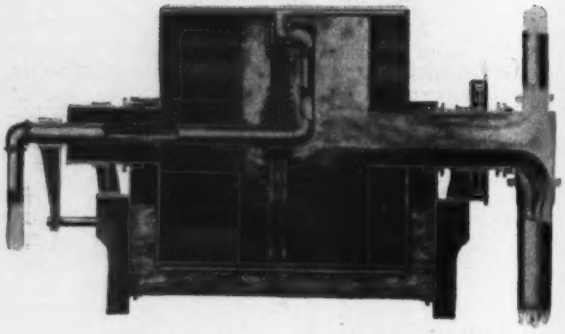
Leaders

IN

PULP HANDLING

OLIVER RING VALVE BLACK LIQUOR PULP WASHER





Featured by:

Separation of liquor and wash.

Minimum restriction to flow.

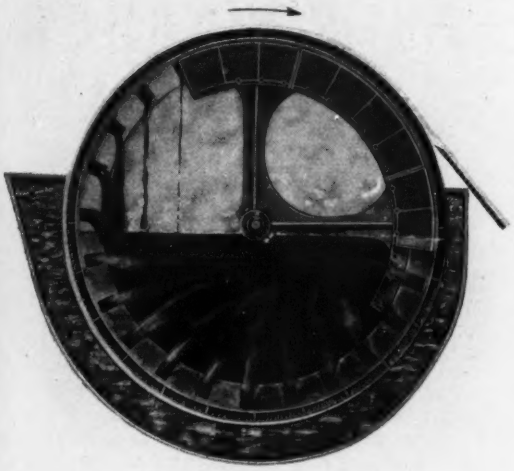
Uniform sheet formation across face of drum. High washing efficiency results from spray action and short liquor travel to center outlets in each section.

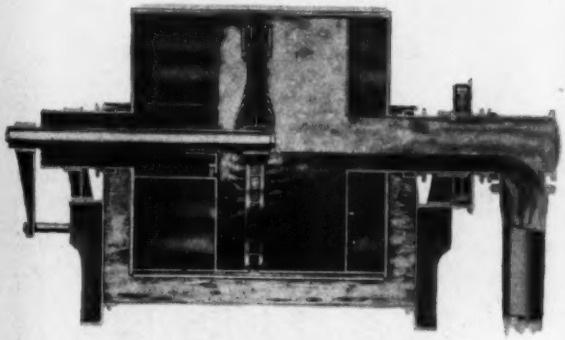
Gentle, fan-shaped sprays from special directional non-clogging nozzles.

Simple, external valve and wash separation adjustment.

Drum acts as a receiver in which air and liquid are separated; foaming minimized.

OLIVER
RING VALVE
DECKER





Featured by:

Exceptionally high capacity, resulting from ample passageways and minimum restriction to flow.

Center drainage from each section resulting in short liquor travel.

Vacuum fully effective to ends of sections.

* * *

Get in touch with us at the Superintendents' Meeting in Cincinnati. We'll be glad to discuss any or all of these filters in relation to your problems.

OLIVER
Streamline
RUBBER-COVERED
BLEACH WASHER

Featured by:

1—Fast get-away, a particularly important advantage when batch washing is carried on. This is due mainly to the fact that the vacuum is immediately and fully effective throughout the entire section.

2—Fast dewatering action once the sheet is clear of the pulp; this permits earlier application of the wash, thus increasing washing capacity and efficiency.

3—Short travel for liquid to get out of sections through center outlet, thence through stream-lined, curved piping to trunnion.

4—Clean discharge with single fluted discharge roll.

5—Handles thick or thin sheets with equal ease; should there be a gap between chlorinators filter will run without pulp and then when feed comes, pick up the sheet and continue on.

6—Designed especially for rubber protection; angles reduced to a minimum; stainless steel for wire cover and wire winding.

7—Minimum ducts and ridges where dirt or pulp might collect.

8—Quiet and cool running spur-gear drive and large, well-oiled bearings.

9—Non-clogging, directional nozzle designed to lay a fan-shaped spray gently on the sheet; can be pointed in any direction.

OLIVER
UNITED FILTERS
INC.

New York, N. Y.
33 West 42nd St.

Chicago, Ill.
221 N. LaSalle St.

Oakland, Calif.
2900 Glascock St.

Factories: Hazleton, Pa. and Oakland, Calif.

Chicago Reports Stronger Paper Market

Many Grades of Paper Show Increased Activity and More Substantial Demand Is Expected To Advance Prices Moderately — Business Men Condemn State Tax Ruling — Paper Milk Cartons "Almost" Accepted.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., May 27, 1940—Unmistakable signs of real strength developed in the Chicago paper market during the past six days. Index bristols and boards joined the kraft market in an upswing registered in actual price increases of from five to ten dollars. Some reports of increases in bonds were not substantiated by most local representatives who preferred to feel that the bond paper market in general was consolidating gains up to the present level and that more substantial demand must come before prices go up materially. Krafts continued strong. Groundwoods were in an improved position with the mills reported running at near capacity. This same betterment was noted by newsprint representatives in the Chicago area. Waste papers made little change during the week. The chief deterring factor in genuine upward trend was said to be the absence of strong demand in many grades. Business in general was reported to be moving most cautiously and thus denying an apprehensive shortage in raw materials the chance to combine with demand to force the market to appreciably higher levels. In the opinion of most observers it is, however, "just a matter of time".

Condemn Sales Tax Ruling

Chicago business men, more than 800 of them, met this week to discuss a matter of real importance to the paper industry—the revised article 5 of the Illinois sales tax which states that an item at retail must be taxed in this state regardless of the point of origin. Under the ruling both buyers and sellers are penalized, critics asserted. Where earlier tax collection rulings exempted Illinois buyers from tax payments on purchases made through Chicago offices of out of State companies, the tax is now being applied. At the same time companies with headquarters in Illinois are being forced to assume the tax on the cost of operations on goods sold outside the State or go to the expense of setting up sales agencies outside Illinois borders.

Has Already Caused Loss of Customers

Edwin M. Palmer of Bradner Smith & Company, Chicago paper jobbers, said that enforcement of the ruling had already caused a material loss of customers of Illinois paper jobbers. Milwaukee distributors, he pointed out, were and are able to undersell their Chicago competitors. He asserted that if companies move out of the State because of the situation, further unemployment would result and new taxes would be imposed to offset the loss in State revenue.

Defends State's Action

In defending the State's action, Samuel Herman of the Department maintained that the finance department is merely following the law in enforcing article 5. He indicated that about the only tax free sales of goods to Illinois purchasers by houses outside the state would be where the seller and buyer completed the entire transaction by mail.

The meeting was held under the auspices of the Chicago Association of Commerce which has appointed a committee to study the situation and try to find a solution.

John Swigart's "Hobby" Featured

The June issue of the Illinois Journal of Commerce devotes a feature article to the story of John Swigart, founder and president of the Swigart Paper Company, and his collection of paper items which really gave birth to the now famous Swigart Gallery of Printed Ideas. According to the Illinois publication, Mr. Swigart has 400 lines of paper and 7000 separate items in his collection along with 20,000 specimens of printed matter. "His hobby of collecting both papers and printing" says the article "blossomed into a service to others three years ago when he opened the Gallery of Printed Ideas, a beautiful display room where artists, printers and merchandisers can garner ideas from what others have done".

Salesmen Open Golf Season

The midwest division of the Salesmen's Association of the Paper Industry held its first of a series of five golf outings at the Sunset Ridge Country Club on Friday, May 24. According to "Pat" Patterson more than sixty paper salesmen and guests planned to enjoy the luncheon, an afternoon of golf and an evening of spontaneous entertainment. Prizes were to be awarded for both class "A" and class "B" golfers with some awards to be given to those even outside these classifications.

Paper Cartons "Almost" Accepted

The paper milk carton seems to have gone through an "off agin, on agin" routine during the past week. Early in the week a Chicago judge paved the legal way for the sale of milk in paper cartons in Chicago and the Fieldcrest Dairies used a full page of newspaper advertising to acquaint Chicago milk users with the types of paper container to be used, with the economies to be effected in price and in time. The advertising copy also recited a history of the case beginning two years ago and indicated that sale of milk in paper containers was only a matter of a very few days. Writers catering to the paper and milk industry no more than had the story in type when it was announced that there were still legal stumbling blocks and that attorneys for the city had provided enough legal hocus pocus to postpone the day for at least another week or so. The paper industry, anxious to see full utilization of paper in a field as important as milk production, must wonder at the long and drawn out procedure followed in this particular case. It might be added that Chicago milk buyers are likewise wondering just what is going on "behind the scenes".

Improved!

BELOIT HORIZONTAL *Dual Press*

PATENTS PENDING

● The Beloit Horizontal Dual Press has been improved by incorporating a primary roll over the first suction press, adding another nip. Thus, this press is now equivalent to three presses instead of two, the first suction roll doing double duty.

● The success of the Beloit Horizontal Dual Press has been definitely established. This new press gives even better results.

THE BELOIT WAY BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS **IS THE MODERN WAY**

BELOIT IRON WORKS BELOIT WISCONSIN

News of the Philadelphia Paper Industry

Wrapping Paper Division of Philadelphia Paper Trade Association Meets To Discuss Merchandising of Kraft Paper—Scott Bowlers Hold Annual Banquet and Announce Winners — Rittenhouse Salesmen Outing.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., May 27, 1940—C. A. Wilder, chairman of the Wrapping Paper Division of the Paper Trade Association of Philadelphia called a meeting of the members on Thursday last in the Association's headquarters, Room 631 Drexel Building, for the purpose of exchanging ideas on merchandising in kraft paper because of the pulp situation. All those present were treated to some good advice by Frank O'Neill, Sr., of the Paper Manufacturers Company; he having experienced conditions as they existed in the World War was able to give the members the benefit of his experience. Mr. O'Neill suggested that everyone carry a good stock of merchandise to service customers, adding that he did not look for any high gyrating prices but felt that merchandise all along the line would be somewhat higher.

Scott Bowlers Hold Banquet

The eighth annual banquet of the Scott Paper Bowling League was held this past week with more than 140 members and their guests attending. John Donaldson was elected president for the coming year, succeeding E. H. "Bert" Flower, well known bowler.

Prizes were presented by Thomas B. McCabe, president of the Scott Paper Company, who congratulated the league for its successful campaign. Other speakers were William P. Mohan, first vice-president of the company, and President Flower. Andy Schroder acted as toastmaster. The high spot of the evening's entertainment was reached when Ralph Knoll was awarded the "Murphy Bowl," symbolic of popularity and good fellowship.

The Tube Room team was awarded the championship prize by Mr. McCabe. The large team trophy was presented to the group as a whole and small individual trophies were presented to each member of the team. Howard Rawley was captain of the team while other members were Walter Strama, Frank Senior, John Carroll and Henry Collingsworth.

Winners in Bowling Awards

Francis Kennedy won high average for the season with 184 and second high average was even between Ed Bradshaw and A. Plitnik. Raymond Saville was high for three games with 665 and second high for three games was tied between Al Hitchings and Everitt Dickerson. John McKirdy and Larry Fulton were deadlocked for high single game at 256 and Star Bonsall was second.

The William F. Mohan, Gilbert Kinney, Dr. Hencke, G. F. Watkins, Dr. Nymetz, Frank Winslow, George Turner and F. L. Holt awards were combined and awarded to the following, except if any one received an additional award: Harry Danning, Norman Rodenbaugh, L. Walz, R. Gambol, James Coverdale, J. Brogran, J. Morris, N. Cady, C. Howell, Jr., M. Abott, L. Salisbury, G. Shertenlieb, J. Springer, Carl Wolf, Paul Yost, A. Carney, J. Carroll, A. Waychunas, A. Hartman, H. Reynolds, E. Hosmer, F. Mervine, J. Matthews, H. Donaldson, Tom Conner, H. Rossiter, G. Devroude and G. Van Dusen.

Rittenhouse Salesmen Hold Outing

The Rittenhouse Paper Salesmen's Association recently held its annual outing at Hi-Top Country Club, and despite the inclement weather upwards of a hundred were in attendance. The Whiting Paper Company's team consisting of Joe Schaller and Jim Lyons won the golf trophy, which was the gift of Hamilton Paper Company. The runner-up for this trophy was Walter-Wilcox-Furlong Paper Company's team consisting of Stan Shelton and Hugh I. Monaghan. President Robinson's individual cup was again won this year by Howard Satterthwaite of Schuylkill Paper Company.

The quoit contest and soft ball contest were called off because of weather conditions, but there was a considerable number of shuffle board games played.

An unusual feature which was more or less of a surprise to everybody was that of a novel recording machine into which every one spoke, and directly afterward each had the thrill of listening to his own record. After the dinner a very enjoyable and elaborate floor show was presented followed by a solo by Harry Fleming of Garrett-Buchanan Co., whose lovely lyric voice resounded through the spacious dining room.

Paper Men Attend Grocer's Convention

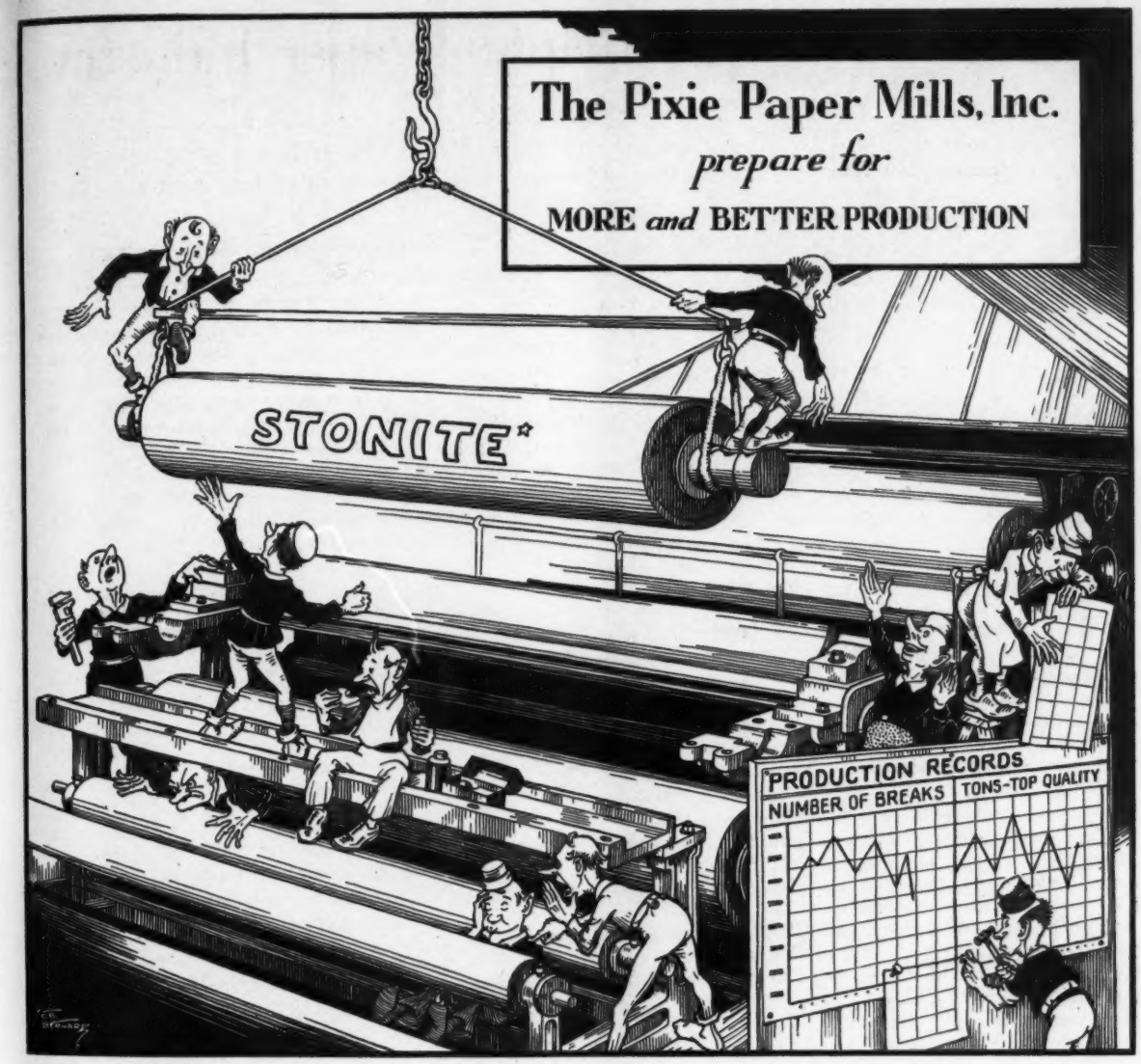
W. B. Killhour, Jr., president of Quaker City Paper Company accompanied by Howard Lee, vice president and head of the Tested Paper Division and William Fox, field salesman, attended the 3-day annual convention of the Pennsylvania Grocers' Association, held at the Abe Lincoln Hotel in Reading this past week. Quaker City Paper Company had a booth exhibiting tested papers and also showed a talking slide entitled "Paper Money."

Race Employees To Hold Election

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 29, 1940—National Labor Relations Board has announced that a collective bargaining election would be held within 30 days among all regular production and maintenance employees of Race Brothers, Philadelphia, Pa., to determine whether they desire to be represented by International Brotherhood of Pulp, Sulphite and Paper Mill Workers, Local 286, affiliated with the American Federation of Labor, by United Paper Workers of America, affiliated with the Congress of Industrial Organizations, or by neither.

All parties agreed that the unit appropriate for the purposes of collective bargaining consisted of all regular production and maintenance employees, exclusive of supervisory employees. Both the AFL and the CIO claimed to represent a majority of the employees in the appropriate unit. The Board found that the contract between the company and the CIO was no bar to a poll.



Based on results obtained with nearly 2000 STONITE Rolls — many of them operating on grades and weights like yours — the performance of any STONITE Top Press or Smoothing Roll can be predicted with unusual accuracy. Experience favors STONITE . . . Why pay for experiments?

NOTE: Any resemblance to persons working in your mill is purely accidental . . . but there's no law against your noticing it. We'll gladly send a large size reproduction of this picture free on request.

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STOWE-WOODWARD, INC. NEWTON UPPER FALLS · MASS.

NEW YORK OFFICE · WOOLWORTH BLDG.

Stowe-Woodward Rolls are made on the West Coast by HUNTINGTON RUBBER MILLS, INC., Seattle, Washington

Makers of **WHITE STAR** *Rubber Covered Rolls,* **TANNITE** *Couch Rolls*
STONITE *Top Press and Smoothing Rolls—All by the* **COREWELD** *Process*

Obituary

Myron T. Ray

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., May 27, 1940—A heart attack early Thursday morning, May 23, while he was shaving at his home at Lake Winnebago proved fatal to Myron T. Ray, 47, secretary and treasurer of the Thilmany Pulp and Paper Company, Kaukauna, Wis. He appeared to be in excellent health when he arose.

Mr. Ray had been with Thilmany company for about 20 years, coming there from Madison, Wis., where he was associated with a firm of public accountants after graduating from the University of Wisconsin.

A native of Attica, Ind., Mr. Ray was born June 21, 1892. He joined the Thilmany organization in 1920 as office manager, and a number of years later was made secretary and treasurer. He served for several years on the executive committee of the Wisconsin Traffic Association, and had been active in other industrial organizations in the city and state. He was a member of the North Shore Country Club, of which he was a director for a period. He and Mrs. Ray were also affiliated with a number of social groups.

Survivors are the widow and two daughters, Virginia and Nancy, his mother, who resides in Chicago, and two sisters.

Funeral services were held Saturday morning at All Saints Episcopal Church at Appleton, with the Rev. W. J. Spicer in charge. The burial services were privately conducted.

Charles W. Mugler

Charles W. Mugler, vice-president of Charles P. Mugler & Company, paper merchants, Buffalo, N. Y., died May 17 at his home, 51 Beard avenue. He was 83.

Born in Buffalo March 26, 1857, Mr. Mugler attended local schools and entered the family grocery business. Later he was a railroad man and in 1884 was appointed to a position in the city comptroller's office under Joseph E. Barnard.

In 1894 Mr. Mugler became associated with the wholesale paper and twine firm of Mugler & Umlauf. In 1917 he became sole owner and then formed the firm of Charles P. Mugler & Co., Inc., with his son as partner.

Mr. Mugler was a member of First Pilgrim Congregational Church, Kiwanis Club of Buffalo, DeMolay Lodge of Masons, Buffalo Consistory and Ismailia Temple.

Surviving are six children, Mrs. Raymond N. Wing, Mrs. Lillian Smith, Mrs. C. Russell Kelleran, Milton W. Mugler and Mrs. George C. Ostendorf of Buffalo and Charles P. Mugler of Orchard Park and a sister, Mrs. Emma C. Seitz.

Walter J. Meyer

Funeral rites for Walter J. Meyer, 58, former coowner of the Meyer Bros. Paper Company, Cincinnati, O., and later vice-president in charge of sales of the Brown Paper Mill Company, Monroe, La., were held in the George H. Rohde & Son funeral home, 3183 Linwood Road, on May 17 at 10:30 A.M. Burial was in Spring Grove Cemetery.

Meyer died Thursday midnight at his home in Monroe after being ill since last October.

Nationally known in the paper field, he had been with the Brown company there 17 years. Previously, he and his brother, Robert E. Meyer, now head of the United Paper Products Company here, operated the Meyer Bros. Paper Co. for nearly ten years. The deceased brother also formerly had operated a paper mill in Franklin, O., in connection with the firm here.

Mr. Meyer was a member of the Cincinnati Lodge of Masons No. 133, which lodge will hold services at the funeral home.

Besides his brother, Meyer leaves his widow, Edith, and a daughter, Violet.

Otto H. Falk

Gen. Otto H. Falk, chairman of the board of directors of the Allis-Chalmers Manufacturing Company and one of the most dynamic industrial, civic and military leaders in Wisconsin's history, died at 3:15 A.M. Tuesday at his home, 2246 N. Terrace avenue, Milwaukee, Wis. He was 74.

He was taken ill last fall of a heart ailment and had been bedridden since November. During his sickness he had several relapses, but his powerful physique held out against the setbacks.

The first 30 years of his life Gen. Falk devoted to the military, rising rapidly in the national guard. Then he turned to industry where his great energy again carried him to the top.

He became president and later chairman of the board of the Allis-Chalmers Manufacturing Company, a director of the state's leading bank, the First Wisconsin National, and an officer and director in many corporations.

Howard C. Riley

Howard C. Riley, vice-president and general manager of the Sabin Robbins Paper Company, 15th and Carpenter streets, Philadelphia, Pa., died suddenly May 23 at his home, 1231 Wyngate road, Wynnewood.

Mr. Riley, who was 44, was born in Dayton, O. He was a member of the Stillwater Lodge of Masons, the Consistory and Antioch Temple of the Shriners in Dayton. He leaves his wife, Mrs. Dorothy S. Riley; a daughter, Joan Louise, student at the Grier School, Birmingham, Pa., and his parents.

Funeral services and burial were in Dayton.

William H. Quinn

William H. Quinn, New York district manager of the Chain Belt Company of Milwaukee, died suddenly May 5 in New York City. Mr. Quinn had been with the company since 1923, and manager of the New York office since 1928.

He was born in Philadelphia in the year 1892, and attended the Pennsylvania State College. During the World War he served in France as a lieutenant in the infantry. Mr. Quinn made his home in Manhasset, Long Island.

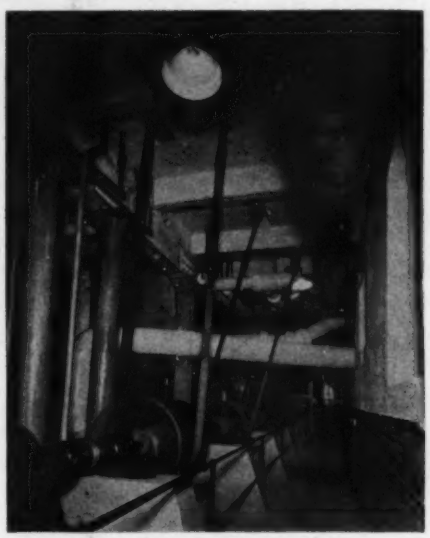
Japanese Mills Adversely Affected

WASHINGTON, D. C., May 22—Japanese paper industry was adversely affected by shortages of electric power and coal during the fourth quarter of 1939. Output by the companies affiliated with the Japanese Paper Manufacturers Association is reported to have fallen 2.8 per cent below the corresponding total for the preceding quarter.

New Back Drives at Mechanicville

The accompanying illustration shows five of the seven back drives installed on a paper machine at plant of the West Virginia Pulp and Paper Company, Mechanicville, N. Y. The installation was put in by the Sager Spuck Supply Company using Highflex belts made by the B. F. Goodrich Company and spliced endlessly on the drives.

The machine is a new type Beloit 137 inch Fourdrinier. Seven "fixed center back drives", drive the couch, dual press, first section driers, size press, second section driers, first and second calender, all being variable speed, changed by shifting the belt on the two cone pulleys.



INSTALLATION AT MECHANICVILLE.

The paper speed of the machine is from 100 to 800 feet a minute. The line shaft runs at .496 revolutions to one foot of paper, making the approximate belt speeds from 450 to 3400 feet a minute. Used throughout is an 8 inch 10 ply belt. Length of belt ran from 39 to 42 feet, and driving and driven pulleys from 33 to 41 inch diameters.

Horsepower required at 750 feet paper speed are as follows: couch drive, 45; dual press, 38; first section drier, 45; size press, 13; second section drier, 21; first calender, 13 and second calender, 13.

The Goodrich company believes the installation is one of the finest examples of endless belt operation on which it has cooperated.

Stein, Hall Contribute $1,000

Stein, Hall & Co., Inc. write as follows: "There used to be a cigarette advertisement which exclaimed, 'What a whale of a difference a few cents make!' Reading the announcement of our contribution to the Greater New York Fund, in your issue of May 22, we feel impelled to say the same thing about a few zeros. Standing alone they mean nothing, but added to $1,000 they pay us a compliment which we do not deserve. We wish we might have contributed $1,000,000 to the fund, because we believe so thoroughly in its benevolent objectives. But our contribution was $1,000 and we would appreciate your running a correction in your next issue."

N. E. Paper Merchants Have Outing

BOSTON, Mass., May 27, 1940—The annual outing and spring meeting of the New England Paper Merchants Association, held at the Rhode Island Country Club, West Barrington, R. I., was a very successful affair, with about 65 present, including both mill men and merchants. The program included a luncheon and a dinner.

President John F. Blackman presided at the dinner and John H. Brewer, vice-president of the National Paper Trade Association in charge of the Fine Paper Division, was a guest.

Moving pictures of the outing at the club taken two years ago were flashed on the screen after the dinner.

H. B. Simmons, of the Industrial Paper and Cordage Company, Pawtucket, R. I. awarded prizes to the following golf players: Low gross, John R. Whitney, Whitney, Anderson Paper Company, Springfield; low gross, L. Yates, Industrial Paper and Cordage Company; low gross, E. E. Ketcham, Southern Kraft Corporation; low net, N. T. Dana, Industrial Paper and Cordage; low net, Jack Mathers, Knight, Allen & Clark, Boston; low net, W. K. Bruckhauser, Agar Manufacturing Corp., Somerville, Mass.; kickers' handicap, Larry Southwick, Plymouth Cordage Company; W. N. Stetson, Jr., Storrs & Bement Company, Boston; W. Edwin Porter, Jr., Cook-Vivian Company, Boston; Herbert Fowler, International Paper Company, Boston.

Other sports included 18-hole putting green, pitching green, horse-shoes, and baseball. James C. Campbell, Industrial Paper & Cordage Company, was host and had charge of the sports, assisted by Mr. Logan, of the Providence Paper Company. On proposal of John R. Whitney, a rising vote of thanks was given the Industrial Paper & Cordage Company.

Detroit Products Votes Settlement

Common and preferred stockholders of the Detroit Paper Products Corporation according to the *Wall Street Journal* at special meeting approved an agreement between the corporation and M. J. Hall & Co., Inc., and Russell Maguire & Co., Inc., for settlement of a $400,000 suit which the latter firms had instituted last August.

Under the settlement plan each share of $25 par 6 per cent preferred stock is to be exchanged for five shares of new $5 par 6 per cent preferred. All accumulated dividends on the old preferred, which at April 1, 1940, totaled $65,625, are waived and the new stock becomes cumulative after July 1, 1941.

The new $5 par preferred stock is given a substantially better conversion rate under the present settlement. Whereas each old $25 par share was convertible into three shares of common prior to July 1, 1942, and into 2½ shares from July 1, 1942 to June 30, 1947, the settlement in effect makes each old preferred shares convertible into 10 common shares.

The preferred shareholders also get a substantially larger voice in management. Heretofore they had no voting rights until four quarterly dividends were in arrears, when they had the right to elect one director until the default was cured. Preferred stockholders now get the right to elect three out of seven directors, and in event of certain preferred dividend defaults they may elect a majority of the directors.

CONSTRUCTION NEWS

Baltimore, Md.—The Robins Paper Company, 617 West Pratt street, commercial paper goods, has acquired the building at 308-14 West Pratt street, and will improve and occupy for expansion. Increased storage and distributing facilities will be provided at new location. Work is scheduled to begin at early date.

Los Angeles, Cal.—The United States Hardware and Paper Company, 3001 East Pico boulevard, commercial and building paper products, is concluding negotiations for purchase of property at Soto and 26th streets, Vernon district, now held by the Harnish Company, and will use as site for new plant. Present buildings will be razed at early date to make way for a new one-story structure, totaling about 90,000 square feet of floor space. A paper processing department will be installed, as well as storage and distributing departments for paper products. Entire project is reported to cost over $100,000, with equipment.

Marinette, Wis.—The Southern Kraft Corporation, manufacturer of kraft, tissue and other paper products, has begun improvements in mill, for which general contract recently was awarded to C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., and will push work to early completion. Program includes a new roof over the machine and beater divisions, for which award has been made to the E. D. Chase Company, Oshkosh.

Montville, Conn.—The Red Mill Paper Board Company, Montville, recently organized with capital of $50,000, is planning early operation of a local mill for the production of paper board specialties. Incorporators of new company include James Morris, New London, Conn.; and George B. Heller, Montville.

Hopewell, Va.—The Hummel-Ross Fibre Corporation, manufacturer of kraft paper stocks, paper board specialties, has work under way on installation of additional equipment at mills, in connection with general expansion program recently referred to in these columns. It is proposed to advance pulp-making output by about 50 tons per day, with corresponding increase in other mill divisions. Work is scheduled for completion at early date.

Dallas, Tex.—Fleming & Sons Paper Mills, 1116 East 12th street, manufacturers of paper products, have approved plans for new one-story and basement addition, to be used for general operations, office and allied service. It is understood that new structure will replace a building damaged by fire a number of months ago. It is reported to cost over $30,000, with equipment. Work is scheduled to be placed under way at once. James P. Baugh, 2908 North Fitzhugh street, Dallas, is architect.

Wausau, Wis.—The Minnesota Mining and Manufacturing Company, Forest street, St. Paul, Minn., manufacturer of sandpaper and other abrasive paper stocks, etc., has plans nearing completion for proposed new addition to raw material mill at Wausau, and will carry out erection early in summer. New structure will be one-story, totaling about 10,000 square feet of floor space, and will be located on site at First and Rosencranz streets. As previously noted in these columns, new unit is estimated to cost approximately $40,000, including equipment. Toltz, King & Day, Inc., Pioneer Building, St. Paul, is architect.

Toronto, Ont.—Arthur J. P. Care, 532 Eastern avenue, manufacturer of wall board products, is considering new one-story plant, estimated to cost about $45,000, including equipment. Work is scheduled to be carried out during the summer.

Crabtree Mills, Que.—The Howard Smith Paper Mills, Ltd., 407 McGill street, Montreal, Que., has approved plans for new addition to Crabtree Mills, used for production of book and other coated paper stocks, tissue stocks, etc., to be one-story, 75 x 200 feet. Erection will be placed under way at once. Cost is reported over $75,000, including equipment.

New Companies, Etc.

Buffalo, N. Y.—The Superite Corporation has been incorporated with capital of 1000 shares of preferred stock, and 1500 shares of common stock, no par value, to manufacture and deal in fiber products. New company is represented by Morris Weinstein, Stock Exchange Building, attorney.

New York, N. Y.—The China-American Paper and Pulp Company, Inc., has been incorporated with capital of $20,000, to deal in pulp and paper products. New company is represented by Harry Hoffman, 30 Pine street, New York, attorney.

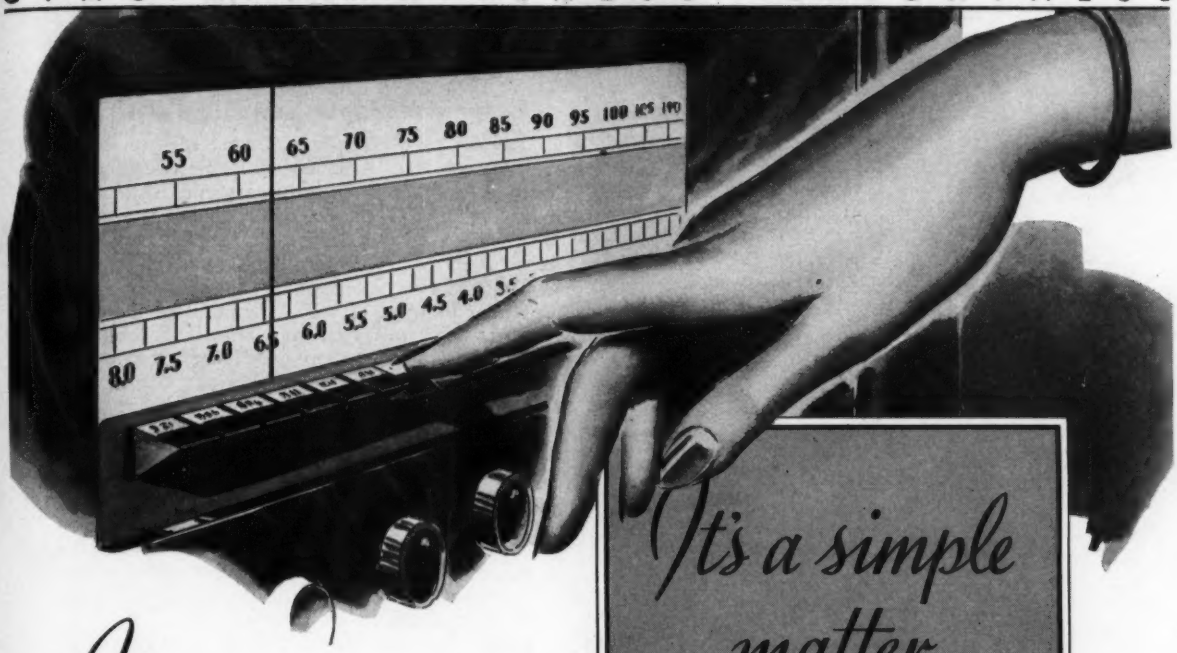
Make Educational Exhibit at Potsdam

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., May 27, 1940—The Racquette River Paper Company has an educational exhibit on display here at which it is pointed out that 400 persons, about one-third of the population, is being employed by the company. The company has a labor policy which has resulted in a labor turnover of practically zero. None quit and few move. About ten years ago the concern pioneered in the making of decorative wrapping papers and box covers with the result today clients include Sears, Roebuck; Montgomery Ward, and others. The exhibit here shows the various materials used in the manufacture of the special paper including Adirondack spruce, sulphur from Texas, bleach liquor, rosin from the southern states, limestone from the north, starch and alum.

From 1892 to 1925 the company made fiber, manila and other coarse papers. Realizing that the age of specialization had come to the industry the owners shifted their entire production technique and installed a bleaching plant which allowed production of white papers and colored products. By making embossed, print and waterproof papers hundreds of new markets were opened to the firm. As a result of the embossing of papers the outlets to packaging companies alone ran into the hundreds and in the past ten years the number of basis patterns used has increased from one to 102.

OPACITY • WHITENESS • BRIGHTNESS



It's a simple matter of SELECTION

WHEN you seek opacity, whiteness and brightness for your catalog, bond, tissue and board stocks, turn to TITANOX and you will find them. Three standard TITANOX pigments now available cover every situation that arises in the manufacturing of white paper products, and give better results in opacity, whiteness and brightness than heretofore have been obtainable.

TITANOX-A (pure titanium dioxide), most opaque of all white pigments, produces these three desirable characteristics with minimum pigmentation. TITANOX-B-30 (titanium barium pigment) as a filler or coating pigment, and TITANOX-C (titanium calcium pigment) for coating, have distinct advantages in opacity over ordinary white pigments. All these TITANOX products are exceptionally white and bright, have uniformly fine particle size, and are chemically inert. Their wide adoption by the paper industry indicates their particular adaptability to paper making processes.

Our Paper Service Department will gladly assist you to obtain the maximum value from TITANOX pigments.

Cooperation. When a doubt appears in your mind regarding the proper TITANOX pigment for a given paper product, communicate with our Paper Service Department. Or if any problem arises in relation to the use of TITANOX pigments under any condition, bring it to headquarters. We are pleased to give full cooperation in technical problems. As the originators of titanum pigments, with a background of twenty years in studying and developing them, we are able to advise you with authority.

TITANOX

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111 Broadway, New York, N.Y. • Carondelet Station, St. Louis, Missouri • National Lead Co. (Pacific Coast Branch) 2240 24th Street, San Francisco, California.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending May 29, 1940

	High	Low	Last
A. P. W.	2⅛	2	2
Armstrong Cork Co.	26¾	22⅝	24
Celotex Corp.	6	5⅛	5⅛
Celotex Corp., pf.	58½	58½	58½
Certain-Teed Products Corp.	4½	3⅞	3⅞
Certain-Teed Products Corp., pf.	19¼	16¾	17½
Champion Paper & Fibre Co.	19	19	19
Champion Paper & Fibre Co., pf.	100½	100¼	100½
Congoleum-Nairn Co.	16	14⅛	15
Container Corp. of America	11½	10⅛	11½
Continental-Diamond Fibre Co.	6⅜	5	5½
Crown-Zellerbach Co.	14⅜	12¼	13¾
Crown-Zellerbach Co., pf.	82	78	81
Flintkote Co.	12⅛	10⅞	11¾
Robert Gair	2⅞	2½	2⅞
Robert Gair, pf.	11	11	11
International Paper & Power	12⅞	10⅛	11¾
International Paper & Power, pf.	47¾	41½	45¾
Johns-Manville Corp.	50	45	50
Johns-Manville Corp., pf.	124	123	124
Kimberly Clark Corp.	31½	29¼	31
MacAndrews & Forbes	26¼	25¾	25¾
Masonite Corp.	23¼	22½	23¼
Mead Corp.	9	7¼	8½
Mead Corp., pf.	60	60	60
Paraffine Companies, Inc.	32	29	30½
Rayonier, Inc.	16¾	13½	16
Rayonier, Inc., pf.	26⅜	24	26
Ruberoid Co.	14	11½	13
Scott Paper Co.	37¾	35¾	36
Scott Paper Co., pf.	102	102	102
Sutherland Paper Co.	21¼	20	20¼
Union Bag & Paper Corp.	11	9½	10⅜
United Paperboard Co.	3½	3⅛	3⅛
U. S. Gypsum Co.	60½	55½	60½
U. S. Gypsum Co., pf.	165	165	165

New York Curb Exchange

High, Low and Last for Week Ending May 29, 1940

	High	Low	Last
American Box Board Co.	4¼	4	4
Brown Co., pf.	18	15¾	18
Great Northern Paper	39	37	39
National Container Corp.	9⅞	8	9
St. Regis Paper Co.	2¾	2¼	2½
St. Regis Paper Co., pf.	56½	48½	52
Taggart Corp.	2⅞	2⅞	2⅞

Brown Groups Urge Assent

BOSTON, Mass., May 27, 1940—In a communication mailed to security holders of the Brown Company, the two bondholders protective committees, the general creditors advisory committee and the preferred stockholders committee, together with representatives of the common stockholders and the debtor company, join in urging acceptance of the plan of reorganization recently filed in the federal court of Portland, Me.

"Reorganization under the plan will restore working capital, rehabilitate plants and terminate the trusteeship," the letter states. "In order to obtain these advantages, all interested parties should act without delay and forward their assent promptly."

In support of their recommendation that the plan be accepted promptly, representatives of the security holders quote in part from the report of Edward W. Wheeler, the special master appointed by the court, as follows:

"The plan which is herewith presented is the consummation of more than three years of diligent and conscientious effort on the part of the representatives of the interested parties to reconcile divergent views and reach an agreement. Unless this plan is promptly accepted by the several classes of creditors and stockholders of the debtor, the rights and interests of all of the owners of its securities may be seriously jeopardized."

Carpenter Paper Co. Files With SEC

The Carpenter Paper Company filed on May 24 a registration statement with the Securities and Exchange Commission under the securities act of 1933 covering 10,000 shares of 4½ per cent preferred stock, $100 par value per share. The stock will be offered by National Bank of Omaha, Burns, Potter & Co., and Kirkpatrick-Pettis Company.

Under the plan of recapitalization of the company, there is being offered to holders of its present series A, 6 per cent cumulative preferred stock the right to exchange said stock for 4½ per cent cumulative preferred stock at par on a share for share basis. All shares of series A, 6 per cent cumulative preferred stock not exchanged are to be called for redemption Aug. 1, 1940 at par and accrued dividends, and all shares of 4½ per cent cumulative preferred stock not exchanged are to be sold to the underwriters at par.

Abitibi Profits Increase

TORONTO, Ont., May 21, 1940—Abitibi Power and Paper Company earnings in April, 1940, prior to audit and charges for depreciation and bond interest, amounted to $525,116, against $383,151 in March and $175,446 in April, 1939. Included in above mentioned earnings for April, 1940, is $113,557 received as premium on U. S. exchange.

Shipments of newsprint in April amounted to 30,795 tons, according to G. T. Clarkson, receiver and manager, as compared with 26,964 tons in March and 24,293 tons in April, 1939. Present indications are shipments of newsprint in May, 1940, will be about 48,000 tons, against 27,202 tons in May last year.

Shipments of sulphite pulp in April amounted to 5,672 tons compared with 6,001 tons in March, 1940 and 3,260 tons in April last year. Present indications are shipment in May will amount to about 6,000 tons against 3,435 tons in May, 1939.

Certainteed Profits Rise

Sales and earnings of the Certainteed Products Corporation during the first four months of 1940 have increased sharply, C. E. Stedman, vice-president, announced. In the first quarter the corporation showed a net profit of $149,000 as compared with a net loss of $148,000 in the same period of 1939. The improvement has been even stronger in the second quarter of this year, Mr. Stedman said.

Billeruds Aktiebolag Profits Less

The important Swedish industrial enterprise known as the Billeruds Aktiebolag of Saffle, Sweden, which is one of the greatest Scandinavian producers of rayon and other wood pulp products, paper, box boards, wood alcohol, resin, etc., has just published preliminary data covering its operations for the calendar year 1939, according to a report from the American Consulate, Goteborg.

The preliminary report of the company, involving

statistics for 1938 as well as 1939, shows that the gross profits for the latter year were reduced by about 5.5 percent, as compared with those of the preceding year.

A. P. W. Loses $19,342

The A. P. W. Paper Company, for the period from July 1, 1939, to April 6 report a net loss after interest on funded debt and notes of $19,342. For the nine months to March 31, 1939, company had a net loss of $42,365. The report states that no provision has been included for additional contingent interest of 1 per cent on first mortgage bonds, with warrants (maximum annual requirements $11,340, payable only if earned). Full interest has been accrued on all of the twenty-five-year 6 per cent convertible notes, of which $635,687 principal amount are on a noncumulative income basis. Of the funded debt interest $29,339 is payable only if earned during the fiscal year.

Johns-Manville Votes Dividend

Directors of the Johns-Manville Corporation declared on May 20, a dividend of 75 cents a share on the corporation's common stock, payable on June 24 to holders of record on June 10. The previous common stock dividend by the company was one of $2 on December 22 last. Directors also authorized the regular quarterly dividend of $1.75 a share of the company 7 per cent preferred stock, payable on July 1 to holders of record on June 14.

Scott Votes Dividend

Directors of Scott Paper Company have declared a quarterly dividend of 40 cents on the common shares, payable June 15, to shareholders of record June 1. Also the regular quarterly dividend of $1.12½ per share on the $4.50 cumulative preferred shares, and the regular quarterly dividend of $1 per share on its $4 cumulative preferred shares, both payable Aug. 1, 1940 to holders of record July 20, 1940.

Continental-Diamond Profits Up

The Continental-Diamond Fiber Company for the March quarter reports a net profit of $181,169, compared with $17,309 earned last year; sales, less returns and allowances were $1,713,613 against $1,340,474. Result of operations of the French subsidiary are not included, though information received indicates a profit was realized in the first quarter of 1940, John P. Wright, president, reports.

Abitibi Hearing Postponed

Hearing of the application by the Montreal Trust Company on behalf of the bondholders' protective committee for judicial sale of the Abitibi Power and Paper Company assets has been postponed two weeks. The hearing will take place on June 8.

West Virginia Earns $1,366,844

The West Virginia Pulp and Paper Company for the six months ended April 30 reports a net profit of $1,366,844, compared with $563,011 for six months ended April 30, 1939.

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PQ SILICATE aids the paper maker to get more water into the fibre. Quite noticeably PQ Silicates in the beater step up hydration. Therefore shorter beating time produces as much stock at a given hydration with 20-25% less cost for power.

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PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 110 May 30, 1940 No. 22

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Olympic Hotel, Seattle, Wash., August 20-23.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Annual Convention, Netherland Plaza Hotel, Cincinnati, Ohio. June 18-20.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Stevens Hotel, Chicago, Ill. October 7-11.

PREPAREDNESS

With the certainty that the national debt limit of $45,000,000,000 will be exceeded by Congressional appropriations this year, the question of how to adjust the fiscal problem must soon come up for discussion. As the only alternative to raising the statutory debt limit is higher taxes, tax measures are certain to be discussed at some time in the future.

National defense in a peaceful nation like the United States has never been given much serious thought, excepting on those few but eventful occasions when the military strength of the nation has been organized to support with force the cause which has been considered just and necessary to our welfare. In common with the Scandinavian countries, to mention but one group of peoples who have formed neutral governments of non-military character, the United States has been strong in the faith of peaceful settlement of international disputes and has strongly advocated the limitation of armaments.

Now, a change has come and with the march of a powerful, well organized and savage aggressor nation across the neutral boundaries in Europe, preparedness must be considered a vital part in our national economy. In the interests of preserving the United States there can be little question of the wisdom of a comprehensive program for setting up, without waste of expenditures or time, an adequate system of national defense. Such a program must include the military strength necessary to fully protect, not only the North American continent, but our far distant possessions. To accomplish this objective is to undertake an extensive and expensive armament program and taxation must soon be considered an essential part of our preparedness needs.

In discussing the subject of national defense the Chamber of Commerce of the United States states its position in part as follows: "Our government must be prepared to defend our country and our people against any aggressor. Adequate armament for national safety must be our first concern. We commend the steps thus far taken to strengthen the army, the navy and the air forces. We urge that further armament be expedited. We must have an army of adequate size and training provided with the most modern arms and equipment, a navy sufficient to protect the interests of the United States, and an air force with superior personnel and equipped with planes of the latest types."

But, as the Chamber points out, "Finance preparedness is just as necessary as military preparedness. Only if we are strong financially can we expect to carry the burden of any prolonged struggle. Unbalanced budgets and further increases in the public debt cannot continue if we are to retain the financial strength necessary for any prolonged defense. We should carry our national defense on a pay-as-we-go basis. We believe that substantial economies can be effected in the operations of our government and that such economies should be made at once in the interest of national safety. With these economies we believe that any additional burden necessary for our safety will be assumed readily by business men and all other citizens."

In a serious discussion of national defense and tax measures, Godfrey N. Nelson, lawyer, tax expert and secretary of The New York Times Company, said in part: "The successful prosecution of the national defense program necessitates the re-establishment of absolute confidence between the government and industry. And one of the important links in the chain of cooperative effort is the taxation of business. During the last three years, however, income taxes have not been conducive of such mutual confidence. The undistributed profits tax, having penalized the retention of earnings, has prevented many corporations from maintaining normal working capital, rendering them incapable at this time of producing articles requiring the installation of new equipment.

"To such corporations, credit for the purchase of necessary equipment should at once be made available. In addition, however, they should be assured, by appropriate provisions in the revenue laws, of adequate allowance for amortization of facilities acquired for government work. Ultimate inventory losses on materials used in such operations should also be provided for. The surtax upon surplus accumulations (Section 102 of the Internal Revenue Code) should be suspended so as to permit of the

retention of earnings as additional working capital. In a period of intensive activity at the instance of government, the threat of prosecution for plowing back earnings into plant equipment or materials used in satisfying government requirements should be wholly removed, and the fear of penalty being imposed should be eliminated."

Now that the need for adequate national defense appears to be strongly sustained by the consensus of public opinion, it is to be hoped that we may promptly discount the emotional aspects in the situation. "It is imperative", states the Chamber of Commerce of the United States, in the last issue of its publication, the *Washington Review*, "that preparations go forward promptly and speedily to protect our people and our country that we may continue to live a free people. Congress should discharge fully its responsibilities as to the national defense which we are so strongly urging. As representative of all our people and with the sole power to declare hostilities, Congress should reaffirm its determination to keep the United States out of a conflict, unless our nation is endangered."

N. Y. Fund Passes $200,000,000 Mark

With the deposit of $16,816,071.82 in contributions and the crediting of $1,153,106.08 in interest during the month of April, the New York State Unemployment Insurance Fund passed the two hundred million dollar mark for the first time in its history, according to a report issued today by Industrial Commissioner Frieda S. Miller.

Representing principally the payment of contributions on payrolls for the first quarter of 1940 which were due on April 15, the $16,816,071.82 deposited during the month fell more than three and a third million dollars short of the deposits in January, the first month of the preceding quarter. At that time the deposits represented contributions due primarily on payrolls for the fourth quarter of 1939.

Summarizing the status of the funds, which are used primarily for payment of benefits to unemployed workers, Commissioner Miller pointed out that $5,193,252.90 was paid out to unemployed workers during the month. Since January 1, 1936, when contribtuions from employers first became due, $386,-116,273.42 in contributions has been deposited, and interest credited on the funds has amounted to $9,-243,654.91. Benefits paid to unemployed workers since January 1, 1938, when benefits first became payable, reached the total of $193,433,580.42. This left $201,926,347.91 available at the end of April for payment of unemployment insurance benefits and for refunds to employers.

To Play Golf at Virginia Beach

The Southern Paper Trade Association will hold its annual invitation golf tournament at the Princess Anne Country Golf Course, June 14 and 15. The headquarters will be at the Cavalier Hotel, Virginia Beach, Va. Those desiring to attend should communicate at once with Disney Cole, treasurer, P. O. Box 1393, Richmond, Va.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	84.0%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.4%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	.....	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	.....	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	.....	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 20 weeks	87.5%	81.8%	67.8%	90.6%	78.8%	69.0%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
April 13	83.3%	April 15	81.0%
April 20	88.8%	April 22	82.7%
April 27	91.3%	April 29	84.3%
May 4	91.2%	May 6	83.6%
May 11	90.6%	May 13	82.0%
*May 18	92.0%	May 20	81.3%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	Apr. 13, 1940	Apr. 20, 1940	Apr. 27, 1940	May 4, 1940	May 11, 1940	May 18, 1940
0% to 50%	58	49	43	41	43	34
51% to 100%	237	246	252	248	242	201
Total Mills Reporting	295	295	295	289	285	235

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	....	....	....	....	....	....

Week end. April 13, 1940—66%
Week end. April 20, 1940—72%
Week end. April 27, 1940—75%
Week end. May 4, 1940—77%
Week end. May 11, 1940—74%
Week end. May 18, 1940—76%

[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.
* Preliminary figure.

G. M. Setliff Made Executive Director

The Sherman Paper Products Corporation of Newton Upper Falls, Mass., announces the appointment of G. M. Setliff as executive director, in charge of operations of the business. He will continue his duties as sales director, a position which he has held during his 12 years' association with this company.

Mr. Setliff is well known in the food industry for his contributions in the field of better packaging. He has designed many new paper products for baking and packaging use, a leader in the introduction of corrugated baking liners and trays which are so widely used today, and has been prominent in the move toward greater use of color and smarter design in containers, bands, and labels for cake and cookie packaging.

Other products of the Sherman Paper Products Corporation include display materials and corroflex, the patented flexible cushion wrapper.

They Started Something!

THE man who first linked two great continents by a slender cable on the ocean's bed revolutionized the course of commerce and industry. Communication between America and Europe became a matter of minutes instead of days when the Transatlantic cable was successfully completed. With easier communication came the opening of new markets for the products of industry—more accurate knowledge of world-wide conditions—greater facility in the transaction of business. The perseverance of Cyrus W. Field and his associates in the face of repeated disappointments, of almost insurmountable obstacles, gave a new impetus to the development of commerce—an impetus that stimulated the growth of almost every phase of business activity. When the first telegraph message crossed the ocean, a new era began in industry.

The first cylinder of Liquid Chlorine made by EBG in 1909.

EBG engineers, too, started a new era in more than one industry when they first made Liquid Chlorine commercially available in America. Manufacturers of paper and textiles were enabled to set new standards of quality—for Liquid Chlorine made possible more efficient and more economical bleaching methods. And another revolution took place in standards of public health—for EBG Liquid Chlorine has helped to prevent the spread of disease by bringing pure, safe water supplies to hundreds of communities and playing a vital role in the sterilization of sewage.

Pioneers in the production of Liquid Chlorine, EBG engineers have the advantage of long experience in its manufacture and servicing. Let this experience work for you—use EBG Liquid Chlorine.

ELECTRO BLEACHING GAS COMPANY
Main Office: 60 East 42nd Street, New York, N. Y.
Plant: Niagara Falls, N. Y.

EBG Liquid Chlorine

FIRST IN THE COUNTRY

Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Holocellulose in Wood

TAPPI Tentative Standard T 9 m-40

Holocellulose is a white lignin-free fibrous material composed of the hemicellulose and the cellulose in wood. In the isolation of Cross and Bevan cellulose (*cf.* T 201 m-34) part of the hemicellulose fraction is dissolved simultaneously with the lignin.

Apparatus

(1)—*Filtering Crucibles,* made either of alundum, porosity R. A. 98, or of porous porcelain, porosity No. 2.

(2)—*Extraction Apparatus:* Soxhlet apparatus is preferable, consisting of (a) Soxhlet extraction flask, 250-cc. capacity; (b) Soxhlet extraction tube, inside diameter 50 mm., capacity to top of siphon 100 cc.; (c) Hopkin's inner-cooled condenser.

(3)—*Water Bath.*

Reagents

(a)—Alcohol-benzene Solution: a mixture of 33 volumes of approximately 95 per cent alcohol and 67 volumes of C. P. benzene.

(b)—Alcohol-monoethanolamine Solution: 95 per cent ethyl alcohol containing 3.0 per cent by volume of monoethanolamine.

Test Specimen

The test specimen shall consist of about 6 grams of air-dry sawdust that has previously been ground to pass a 40-mesh sieve and to be retained on a 60-mesh sieve.

Procedure

Weigh accurately three samples of sawdust of approximately 2 grams each. Determine the moisture content on one sample and use the other two for duplicate determinations of holocellulose as follows:

Extract the sample[1] in a tared filtering crucible for 4 hours in a soxhlet apparatus with 95 per cent alcohol and then with alcohol-benzene according to TAPPI Standard T 6 m-40. Wash the residue with alcohol to remove the benzene and extract it with 400 cc. of hot water in an Erlenmeyer flask for 3 hours in a boiling bath. Filter, wash with hot water followed with cold water (10 deg. C.) and remove the excess water by suction.

Using moderate suction, chlorinate the sample by passing Cl gas through a funnel inverted over the crucible held in position on a suction flask and kept cool with iced water. After chlorination for 3 minutes remove the inverted funnel, stir the wood thoroughly, and rechlorinate for 2 minutes.

[1] If lignin is to be determined by difference as described under "Additional Information," the percentage of extractives must be obtained.

Add alcohol to dissolve excess Cl and HCl and after 1 minute remove by suction. Release the vacuum, add sufficient hot alcohol-monethanolamine to cover the wood completely, and stir thoroughly. Let the solution stand 2 minutes then remove by suction. Repeat the solvent treatment. Remove any remaining solvent by washing twice with 95 per cent alcohol and twice with cold water, removing excess moisture by suction. Repeat the chlorination and extraction treatments until the residue becomes white following the chlorination and is no longer colored by the addition of the hot alcohol-monoethanolamine. Remove the alcohol-monoethanolamine by washing twice with alcohol, twice with cold water, and again with alcohol until the residue is neutral to litmus. Finally wash thoroughly with ether to remove all of the alcohol and facilitate drying.

Air dry the holocellulose to remove excess ether and then dry to constant weight in an oven at 105 deg. C.

Report

The result shall be reported as percentage by weight of holocellulose in the moisture-free wood.

Additional Information

A fraction comparable to Cross and Bevan cellulose can be determined from the holocellulose as follows:

Place the crucible and contents from the holocellulose determination in a 600-cc. beaker and add 200 cc. of boiling 1.3 per cent sulphuric acid. Place the beaker and contents, in a boiling-water bath whose level coincides with that of the solution in the beaker and continue hydrolysis for 2 hours, maintaining the original levels of the acid solution and the water bath by the addition of water.

Filter the solution through the crucible and wash the hydrolyzed holocellulose with 150 cc. of hot water. After transferring the residue to a clean, tared filtering crucible, wash with hot water under suction until neutral to litmus, then with 20 cc. of alcohol and finally with 20 cc. of ether. Air dry the hydrolyzed material to remove the excess ether and then dry to constant weight in an oven at 105 deg. C. Calculate the percentage of Cross and Bevan cellulose on the basis of the moisture-free wood.

The lignin content, comparable with that determined by the sulphuric acid method, can be obtained by difference between the unextracted wood and the holocellulose plus the extractives.

Reference

Van Beckum, W. G., and Ritter, G. J., *Paper Trade J.* 105, no. 18; 127-130 (Oct. 28, 1937); *Tech. Assoc. Papers* 21:431-434 (June, 1938).

To Build Board Mill at Tel Aviv

WASHINGTON, D. C., May 29, 1940—A group of immigrants from Rumania and Czecho-Slovakia are planning to establish a paperboard mill at Tel Aviv, according to the Trade and Industrial Department of the Jewish Agency, according to a report from the American Consulate General, Jerusalem. Imports of paperboard during the year 1938 amounted to 1,625 metric tons valued at LP 28,000.

Ash of Paper

TAPPI Revised Official Standard T 413 m-39

This method deals with the determination of ash, which is defined as the residue after complete combustion of paper. The mineral content of paper may consist of (a) various residues from chemicals used in its manufacture, (b) metallic matter from piping and machinery, and (c) filling, coating, and pigmenting materials. Generally, if the ash content does not exceed about 2 per cent, no filling, coating or pigmenting material has been used; but this is not always the case as pigments are sometimes used in very small amounts. When filling and coating materials are present which do not change much on ignition, the ash is an approximate measure of the amount present (see also T421 m)

Apparatus

A crucible, such as platinum, alundum, porcelain or silica, which does not change in weight under the ignition conditions, and having a tightly fitting lid, is used for the ignition.

An electric muffle furnace with an operating temperature of about 925 deg. C. (1700 deg. F.) is recommended, but a gas burner yielding a similar temperature is also suitable.

Test Specimen

The test specimen shall consist of small pieces of paper so selected as to be representative of the sample. Its total weight shall not be less than 1 gram.

The sample shall be dried to constant weight at 105 ± 2 deg. C. and weighed to the nearest 1 mg. This may be done with sufficient accuracy for the purpose in the ignited and weighed crucible used for the ashing of the paper.

Procedure

Ignite the sample in the crucible, which, together with the cover has previously been ignited and weighed to 0.1 mg. To avoid loss of small particles, the crucible shall be covered during the initial ignition of the paper, which shall be done at low temperature, and the temperature shall then be gradually raised to a maximum of about 925 deg. C. (1700 deg. F.). After this temperature is reached, the lid of the crucible may be slid to one side until the combustion is complete. Care must be taken at all times to protect the contents of the crucible from air drafts. When the paper is completely burned, as indicated by absence of black particles, remove the covered crucible to a desiccator and let it remain until its temperature is in equilibrium with that of the surrounding atmosphere. Weigh the crucible and contents to the nearest 0.1 mg. Repeat the ignition and weighing until the weight is constant.

The percentage of ash shall be computed on the basis of the weight of the specimen when dried to constant weight at 105 ± 2 deg. C. and shall be the average of at least two determinations. The results should agree to within 0.1 for papers containing 5 per cent ash or less, to within 0.15 for papers containing from 5 to 10 per cent ash and to within 0.2 for papers containing over 10 per cent ash.

Report

The percentage of ash shall be reported to the nearest 0.05 for papers containing 5 per cent ash or less. For papers containing 5 to 10 per cent ash it shall be reported to the nearest 0.1, and for papers containing over 10 per cent ash to the nearest 0.2.

Additional Information

See T 211 m, Ash in Pulp.

TAPPI Notes

The Empire State Section of the Technical Association of the Pulp and Paper Industry will hold a golf tournament and an old clothes party at the Jefferson County Club, Watertown, N. Y. on June 8. Luncheon will be served at noon and will be followed by golf, trap-shooting and ladies' bridge. There will be a business meeting for the election of officers and a dinner-dance will be held in the evening.

The Kalamazoo Valley Section of TAPPI will hold a golf tournament, dinner and entertainment at the Gull Lake Country Club, Kalamazoo, Mich. on Thursday, June 6th.

T. H. Ireland of the Crane Company has been transferred from the Chicago office to 4730 29th Street, Long Island City, N. Y.

W. F. Connolly, formerly of the National Paper Products Company, Carthage, N. Y. is now located at 4154 Bronxwood avenue, New York, N. Y.

J. W. Merrill, formerly chemist for the Hurlbut Paper Company is now assistant chemist for the Crocker-McElwain Paper Company, Holyoke, Mass.

R. E. Burkhardt, formerly superintendent of the Central Hudson Paper Mill Inc., is now superintendent of the Iroquois Paper Company, Thomson, N. Y.

R. A. Masten, formerly manager of Berst-Forster-Dixfield Company is now manager of the York Haven Division of the Southern Kraft Corporation.

Leo Maas, recently graduated from the Massachusetts Institute of Technology, is now chemical engineer for the Masonite Corporation, Laurel, Miss.

An excellent technical program is being prepared for the national fall convention of the Technical Association to be held at the Olympic Hotel, Seattle, Wash., August 20-23, 1940. Reservations for the TAPPI Special Train should be made with W. A. Geiger, Weyerhaeuser Timber Company, Pulp Division, 400 W. Madison street, Chicago, Ill.

Arno J. Luth has resigned his position with The Michigan Alkali Company, Wyandotte, Mich.

The Delaware Valley Section of TAPPI will hold a golf outing and dinner-dance at the St. Davids Country Club (near Wayne, Pa.) on Friday afternoon and evening, June 7, 1940.

To Represent W. C. Hamilton & Sons

Boston, Mass., May 27, 1940—Knight, Allen & Clark, Inc., have become representatives of W. C. Hamilton & Sons, Inc., Miquon, Penn., on Hamilton Bond and Ledger and have stocked these papers.

The Photoelectric Determination of the Permeability of Paper to Fluids*

By Howard L. Vincent[1]

Abstract

The penetration of paper by fluids may be followed photoelectrically by observing the increasing light transmittance accompanying the displacement of air from the pores. When the transmittances are plotted in accordance with the mathematical expression for capillary flow in capillaries, it becomes possible to express the rate of penetration as a single numerical index characteristic of the permeability of the paper. These numerical indexes are termed penetration slopes and are independent of the thickness and color of the sample, as well as the viscosity and surface tension of the penetrating fluid. The method is especially suited to bonds, tissues, and highly absorbent papers.

The study of the permeability of paper to fluids has received considerable attention because of its great importance in industry. Nearly every type of paper must either absorb or resist fluids according to its intended function. The experimental study of fluid penetration has been fraught with difficulty because of the extreme physical complexity of paper. The many methods devised cannot be reviewed here. The majority have been little concerned with rates of penetration, being primarily measurements of the total time for complete penetration or some similar end point. Great stress has been laid instrumentally on determining such end points, a matter of great difficulty even under the best conditions because of the constantly diminishing rate of penetration inherent in porous materials. A detailed theoretical treatment of the subject of permeability has been published *(9)*. The principal previous methods of study have been optical or gravimetric, of which the Fuess method and the Cobb *(2)* method are examples.

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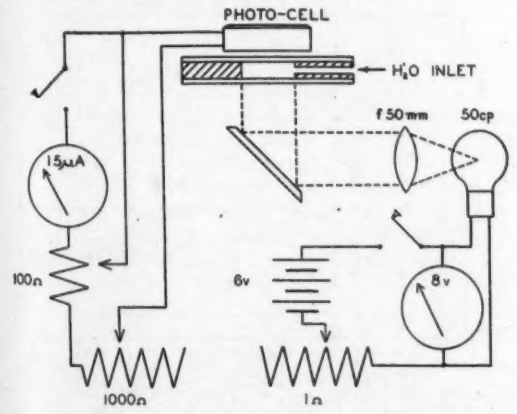

FIG. 1.
Diagram of Electrical Circuits and Optical System.

The various capillary rise methods such as Peek and McLean's *(5)* must also be considered as optical. Van den Akker and Kress *(6)* have described a photoelectric optical method. The instrument and method to be described here are essentially a development of this last method, using standardized penetrants and a system of plotting results which yields characteristic and comparable indexes of the fluid permeability of paper.

Cellulose fibers are relatively transparent, but paper is opaque because it contains both cellulose fibers and air, in which the speed of light is not identical. Hence, both refraction and reflection occur as light passes through paper, resulting in considerable absorption. When, however, the air is displaced with a material whose index of refraction is similar to that of cellulose, then the refraction and reflection are minimized, and the paper transmits light in proportion to the extent of air displacement. Thus, the rate of increase in light transmittance can be made the measure of air displacement and, hence, the rate of permeation of the fluid itself. The rate of increase in light transmission is most conveniently followed photoelectrically.

Instrument Construction

The instrument developed for this purpose consists essentially of a photoelectric cell of the copper-copper oxide type, receiving light impulses through the paper sample and indicating continuously on a microammeter the percentage light transmittance of the sample, as shown in Fig. 1. Variable resistors permit the adjustment of the microammeter to full scale deflection (100 arbitrary units or per cent) for the incident light when no sample is present. Such an arrangement closely resembles the Westinghouse transometer.

The light source is a 50-c.p., 6-v. bulb operated by a storage battery to insure constant voltage. The intensity of the light may be controlled through the variable resistor and voltmeter. The light passes through a lens of 50-mm. focal length focused to give a concentrated beam of parallel light after reflection from the mirror. The light passes through a circulating water cell with faces of flash opal glass which diffuses the light and removes the radiant heat of the lamp. This cell consists of a square brass plate 3/8 in. (9.5 mm.) thick with a hole in the center 1 1/4 in. (31.8 mm.) dia., to which a water inlet and outlet lead from the side. The glass faces of the cell are cemented in sandwich fashion to the brass plate so as to retain water. Circulating water is supplied at a constant temperature to this cell.

The instruments are mounted on a bakelite panel covering a wooden box as shown in Fig. 2. The light source is at the rear of the box in a ventilated asbestos-lined compartment, to which there is access

through a small door for changing bulbs. The circulating water cell is mounted flush with the bakelite panel by a square flange. It serves as a sample and penetrant holder. Over it rests the photoelectric cell on a pivoted arm so that it may be swung back out of the way when placing the sample in position. The leads from the photoelectric cell pass through the arm to the pivot and then through the panel to the microammeter.

Auxiliary Equipment

Auxiliary apparatus is shown in Fig. 3. Running water is supplied to the water cell by the Bausch and Lomb constant temperature heater and lag bottle which keeps the temperature of the circulating water at 25 deg. ± 0.1 deg. C. Constant temperature is essential in avoiding variations in the viscosity of the penetrating fluid lying on the surface of the circulating water cell. The storage battery is housed in the box at the right in Fig 3.

Manipulation of the Apparatus

The constant temperature system is adjusted to 25 deg. C. and the voltage of the light source set at 5.0 volts. A small pool of penetrant is poured on the center of the circulating water cell. With the photoelectric cell in position but without sample, the microammeter is set by means of the variable resistors to read 100 per cent or full scale deflection. Then the photoelectric cell is swung back out of the way. The sample is now wound around the roller and by means of holes punched in the sample it is anchored on the pins at the side of the circulating water cell as shown in Fig. 3. When all is in readiness, the sample is rolled into contact with the penetrant as a stopwatch is started. The photoelectric cell is promptly replaced, and periodic readings of the microammeter are made on a predetermined schedule lasting 900 seconds.

Standardized Penetrants

The rate of increase in light transmittance as shown by the microammeter depends upon both the sample and the penetrant. The penetrating fluids used in the past have been readily available natural materials such as castor oil, turpentine, and boiled linseed oil. Their differences in properties from sample to sample, their inherent chemical instability,

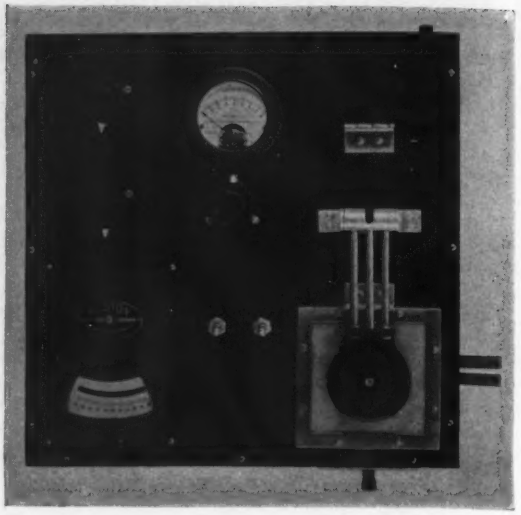

FIG. 2.
Top View of Instrument.

or their volatility do not recommend them as research standards. Furthermore, their viscosities, although varying from sample to sample, fall within narrow ranges and do not allow the development of maximum precision in determining penetration rates by the present method. An absorbent waterleaf paper requires a viscous penetrant for convenient and accurate measurement, while the same paper after hard tub sizing requires a thinner penetrant, yet the penetration rates of both should be comparable. Hence, there was developed a series of penetrants, obtained by dissolving polyvinyl acetate in diethyl phthalate. Polyvinyl acetate is a synthetic resin which increases the viscosity of the nonvolatile solvent diethylphthalate to roughly the eighth power of the concentration *(3)*. Solutions of almost any viscosity may be prepared with these materials. The polyvinyl acetate was dissolved by mechanical stirring on a water bath followed by filtration with vacuum through paper on a steam heated Büchner funnel. For use in plotting transmittances, as described below, the resultant solutions were standardized by determining at 25 deg. C. density, absolute viscosity in a large bore Ostwald viscometer as

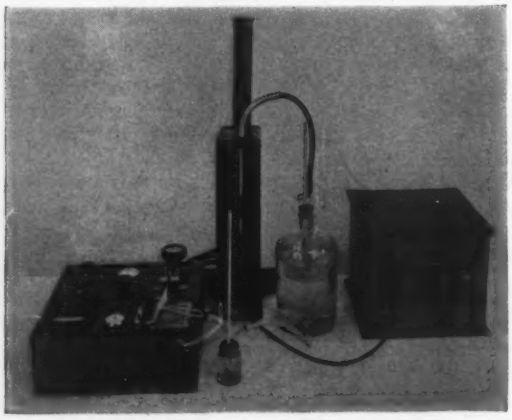

FIG. 3.
Assembly View of Instrument with Accessory Equipment.

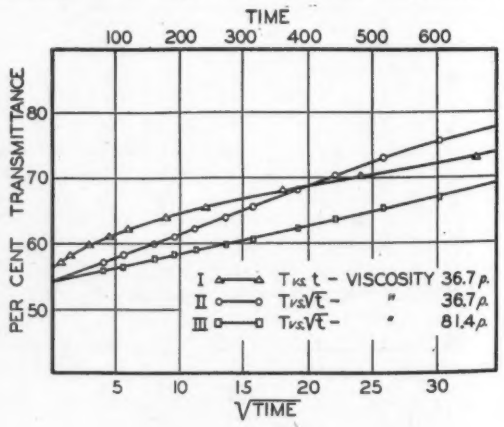

FIG. 4.
Comparison of Plotting Methods and the Effect of Viscosity.

modified by Cannon and Fenske *(1)* and surface tension by the height of rise in a glass capillary. These synthetic penetrants are clear, colorless, and stable. A 25 per cent by weight solution of polyvinyl acetate in diethyl phthalate had, in one instance, a viscosity of 81 poises. Such solutions are nonaqueous and do not swell cellulose. Aqueous penetrants were prepared by similarly dissolving polyvinyl alcohol (du Pont RH 349) in distilled water.

The choice of a particular viscosity is governed by the nature of the sample to be tested. Newsprint requires a penetrant of 50 poises viscosity, while a tub-sized hard-beaten rag bond is most conveniently tested with a penetrant of 25 poises viscosity. The use of penetrants of very high viscosity, e.g., 80 poises, has the same effect, as if transmittance readings were taken at very short times after the start of penetration with penetrants of moderate viscosity. In this way early rates of penetration and surface effects may be conveniently studied.

Plotting Results

When percentage transmittance is plotted against time, a curve is obtained which is without linearity as shown in Curve I of Fig. 4. Such curvature makes comparisons between samples difficult, and it is impossible to satisfactorily express the continuously declining rate of penetration as a single numerical index characteristic of the sample as a whole.

Fluids penetrate paper through capillary attraction. The flow of liquids into capillaries due to capillary force follows Equation 1 derived originally by Lucas *(5)* and later by Washburn *(8)*.

$$L^3 = \frac{r\ ST\ Cos\theta\ t}{2V} \qquad (1)$$

Where

L = distance penetrated by the fluid
r = capillary radius
ST = surface tension of the fluid
θ = contact angle of the fluid and capillary walls
t = time
V = absolute viscosity

Such an equation is easily derived by substituting the formula for capillary force for the terms expressing the gravitational head in Poiseuille's law. Cobb and Lowe *(loc. cit.)* stressed the importance of

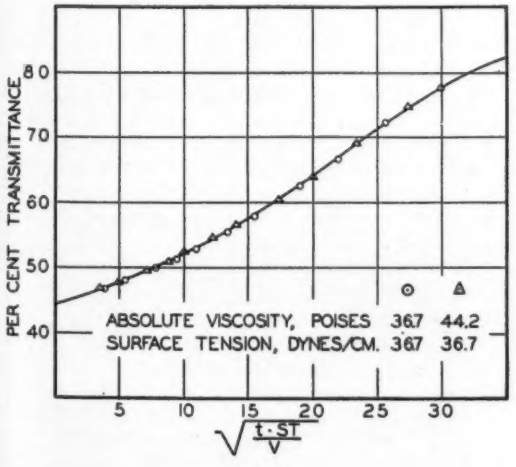

FIG. 5.
Method of Plotting Which Is Independent of Viscosity and Surface Tension.

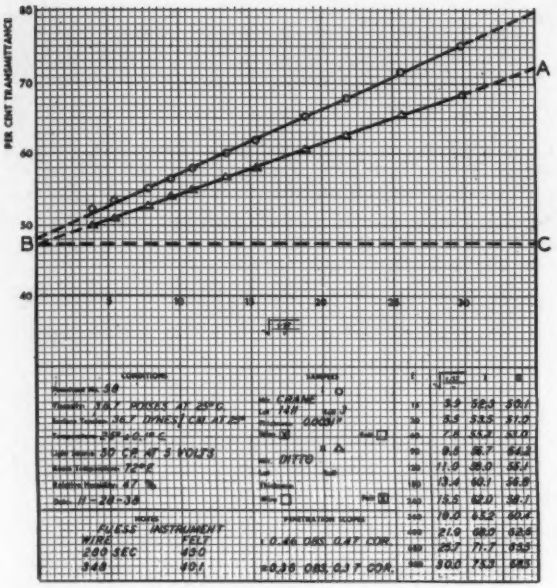

FIG. 6.
Printed Plotting Form for Recording Data and Calculating Penetration Slopes.

Equation 1, pointing out that the distance penetrated is proportional to the square root of the time and employed this principle in their method of plotting. With the present method linearity is at once developed as shown in Curve II of Fig. 4. Larocque *(4)* has stated that the time required for complete absorption is proportional to the quotient (viscosity/surface tension) although his experimental method did not allow the plotting of rates. The importance of including viscosity in the method of plotting is shown in Curves II and III of Fig. 4 which are for the same paper but using penetrants of different viscosity. According to Equation 1, the extent of penetration is also proportional to: $\sqrt{(\text{time})\ (\text{surface tension})/(\text{viscosity})}$ when percentage transmittance is plotted against such values, the points fall very close to a single common curve even when penetrants of different viscosity are employed as shown in Fig. 5. This method places the plotting on a comparable basis for all penetrants and gives practically linear curves, whose slopes can be expressed numerically as tangents. These tangents have been named penetration slopes. They are calculated by plotting the recorded percentage transmittance readings against $\sqrt{t \cdot ST/v}$ on standard 7 by 10 in. graph paper ruled 10 by 10 lines to the inch as shown in Fig. 6. Straight lines may be drawn through the curves intersecting the margin at points *A* and *B*. The height of rise *CA* is divided by the distance, *BC*, both being measured by the rulings of the graph paper, to give the tangent of the angle *ABC*. In Fig. 6 these tangents are recorded at the bottom as observed penetration slopes. With practice it is possible to draw the slopes with surprising accuracy, even when the curve departs somewhat from the linear.

Thickness Correction

Van den Akker and Kress (*loc. cit.*) showed that the absorption of light by paper roughly obeys Lambert's absorption law:

$$I = I_o e^{-\mu d} \qquad (2)$$

Where
I = intensity of transmitted light
I_o = intensity of incident light
μ = absorption coefficient
d = thickness

It is apparent that the rate of penetration as observed photoelectrically will vary with the thickness of the paper, thicker samples yielding slow rates because of their poorer transmittances. It, therefore, becomes necessary to correct the observed penetration slopes for the optical effect of thickness.

Let us assume that two samples of paper with identical absorption coefficients are 3.0 and 3.5 mils thick, respectively. The ratio of the intensities of their transmitted light will be:

$$\frac{I_1}{I_2} = \frac{I_o e^{-3\mu}}{I_o e^{-3.5\mu}} \qquad (3)$$

Now, I_o, the incident light, and μ, the absorption coefficient, are the same in each case, hence,

$$\frac{I_1}{I_2} = \frac{e^{-3\mu}}{e^{-3.5\mu}} = \frac{3.5}{3} = 1.17 \qquad (4)$$

In other words, the 3-mil sheet should transmit 1.17 times more light than the 3.5-mil sheet. This was confirmed experimentally for sheets of these thicknesses, the transmittances being measured as 43.5 and 37 per cent. The ratio between these transmittances is 1.165.

Correcting the Observed Penetration Slope

In order to correct the observed penetration slopes for thickness, 3 mils was chosen as a standard thickness. This thickness is approximately a mean for most of the types of paper likely to be encountered in using this photoelectric method. Hence, the sample thickness in mils is divided by 3 giving a ratio by which each transmittance reading could be multiplied in order to correct for thickness. However, such a task is unduly arduous, and it is quite as satisfactory to multiply the penetration slope, i.e., the numerical tangent of the observed readings by the thickness correction ratio to give corrected penetration slopes as shown at the bottom of Fig. 6.

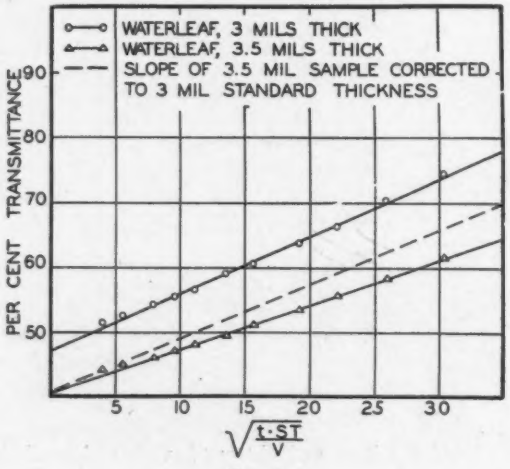

FIG. 7.
Effect of Correcting for Thickness.

Color Correction

Since the photoelectric cell is not equally responsive to all wavelengths of light, special precautions must be taken with colored papers. If the microammeter is set without sample for 100 per cent deflection with white light, then the transmittance of a blue paper, for example, is far less than if it were white, not only because of the greater absorption due to the dye, but also because the light transmitted is blue, which has only a weak effect on the photoelectric cell compared to yellow or white light. Hence, for accurate results the microammeter should be adjusted to read 100 per cent with incident light of the same chromatic composition as the colored paper to be tested will transmit. This may be accomplished by preparing a color filter from part of the paper to be tested. A small sheet is cut from the sample and completely saturated with diethyl phthalate at 100 deg. C. under vacuum. The translucent sheet is pressed between glass plates and placed under the circulating water cell in the path of the light source. With such a filter the microammeter can be adjusted with light of the proper color before testing the sample.

Precision and Reproducibility

In order to check the reproducibility of transmittance readings, a single small sheet was tested repeatedly. This was made possible by extracting the penetrant from the paper after each test. The single sheet was first extracted with acetone in a Soxhlet extractor as a control measure. The penetration slope of the felt side of the sheet was then determined in the usual way, after which the sheet was extracted with hot acetone to remove the absorbed penetrant. It was then tested again followed by another extraction, etc. Results are given in Table I.

TABLE I.—REPRODUCIBILITY OF TRANSMITTANCE READINGS OBTAINED WITH A SINGLE SAMPLE OF PAPER

Time sec.	I %	II %	III %	Aver. %	Ave. diff.
30	67.5	67.0	68.0	67.5	0.3
60	74.5	73.2	74.2	74.0	0.5
90	78.3	77.0	78.0	77.8	0.5
120	81.0	79.5	80.7	80.4	0.6
180	84.0	82.6	83.5	83.4	0.5
240	85.7	84.2	85.0	85.0	0.5
300	86.5	85.2	85.8	85.8	0.3
420	87.5	86.0	86.5	86.7	0.6
Increase	20.0	19.0	18.5	19.2	0.5

The readings were accurate to about one-half per cent transmittance, equivalent to 1/64 in. on the scale of the microammeter.

The propriety of plotting transmittance against $\sqrt{(\text{time})\ (\text{surface tension})/(\text{viscosity})}$ was checked by a similar series of tests made with a single sheet of paper, using penetrants of different viscosities and extracting the sample with hot acetone between tests as before. The results are given in Table II.

TABLE II.—INDEPENDENCE OF PENETRATION SLOPES TO VARIATIONS IN VISCOSITY (SINGLE SAMPLE OF PAPER)

Absolute viscosity	Surface tension	Penetration slopes*
44.2 poises	36.7 dynes/cm.	0.55
36.7	36.7	0.55
27.2	36.8	0.56

* Corrected for thickness.

It appears that the method is not affected appreciably by viscosity or surface tension, and that penetrants may be selected according to the nature of the sample to be tested yet yielding strictly comparable results.

Correction for Thickness

A unique set of samples of different thicknesses permitted checking the validity of the thickness correction. The samples were made on the same machine from the same chest of stock within one hour of each other. They were waterleaf papers containing rosin sizing only and had not been finished. Except for thickness, they were as nearly identical samples as it is possible to obtain. The felt side of each was tested in the usual way with a nonaqueous penetrant of 36.7 poises viscosity. The results are given in Table III.

TABLE III.—EFFECT OF CORRECTING FOR THICKNESS

Lot no.	2107	2108
Thickness, mils	3.5	3.0
Beater sizing	rosin	rosin
Tub sizing	none	none
Finish	none	none
Obs. penetration slope	0.35	0.43
Corr. penetration slope	0.41	0.43

The actual curves for Table III appear in Fig. 7.

Influence of Color

A number of tests were made to check the effectiveness of the previously described filter system of compensating for color. It was not possible to use ordinary samples of papers dyed in manufacture, because it was impossible to determine what the permeability characteristics of such samples might have been had they been white. It was necessary to dye by hand samples from a single large sheet of white paper with various colors. This was accomplished by steeping the sheets in solutions of dyestuffs dissolved in acetone diluted with 2.5 per cent of water. Such a solution has little effect on the fiber structure of the paper. The dyes were selected for their solubility in acetone and their insolubility in diethyl phthalate. As a control one set of samples was steeped in diluted acetone without dyestuff. Color filters were prepared as previously described from one set of dyed samples. The nonaqueous penetration slopes of the balance were then determined with the appropriate color filter placed in the path of the light beam. The results are given in Table IV.

TABLE IV.—INFLUENCE OF COLOR ON PENETRATION SLOPES

Dyestuff	Color	Corr. penetration slope
None	white	0.27
Erythrosine	pink	0.28
Metanil Yellow	canary	0.26
Wool Blue G Extra	sky-blue	0.24

Considering the treatment which the samples received, this agreement is considered good. Blues, particularly in the deeper shades, tend to yield low values. This effect is the result of two factors—the weak response of the photoelectric cell to the blue wavelengths and the poor sensitivity of the human eye to blue which causes paper to be dyed in manufacture to much deeper shades of blue, colorimetrically speaking, than for other colors.

Aqueous Penetrants

Because of their swelling action on cellulose and the effect of sizing, aqueous penetrants give very different results from nonaqueous penetrants. On plotting the transmittance readings obtained with aqueous solutions of polyvinyl alcohol in the standard way, no linearity could be established. With tub-sized rag bonds the aqueous penetrant showed a rapid rate of penetration at the outset, but the rate soon fell to zero, although it was apparent that much of the pore space remained unpenetrated. There is at first a brief rapid penetration, but as penetration first a brief rapid penetration, but as penetration proceeds the water apparently commences to swell the fibers and tub sizing, effectively reducing the pore radius. This effect is naturally greatest at the surface, where the fibers are exposed to the action of water for the longest time. While penetration in the interior is still far from complete, the supply of penetrating fluid is cut off at the surface and further penetration ceases.

Aqueous penetrants cannot be expected to strictly obey the formula for capillary flow in capillaries which by derivation stipulates a fixed pore radius. It can hardly be assumed that the pore radius of paper remains unchanged during the penetration of aqueous solutions.

Effect of Humidity

It was an unfortunate circumstance that the laboratory in which this work was done was not equipped with a constant humidity room. Relative humidity affects the rate of penetration, although the daily variations usually encountered were insufficient to profoundly alter rates of penetration. In the few experiments performed, the effect of humidity on penetration was of the same order as the effect on thickness. The effect observed by Larocque (*loc. cit.*) that increased humidity causes an increase in the rate of penetration was qualitatively confirmed in one experiment.

Limitations

The instrument and method have certain limitations. It was primarily designed for research rather than control work, although it might prove useful for the latter, where the need for precision warrants the expenditure of the necessary time. The range of papers which can be successfully handled is not unlimited. It is obviously essential that there be a reasonable increase in light transmittance of the sample as penetration proceeds. Like other optical methods, it is unsuited to glassines, greaseproofs, intensely colored wrappings and covers, boards, etc. However, it fills a need where gravimetric methods have failed with the lighter weight highly absorbent bonds, newsprints, etc., in which penetration may proceed so rapidly that it is impossible to make a sufficient number of accurate weighings before penetration is complete. For papers in this class, the method is believed to be capable of greater precision and dependability than has heretofore been possible.

Acknowledgment

The author wishes to thank J. A. Van den Akker of The Institute of Paper Chemistry for helpful suggestions in constructing the instrument and E. O. Reed of Crane and Co. for the samples of paper identical but for thickness, and E. I. duPont de Nemours & Co., Inc. and Carbide and Carbon Chemicals Corp. furnished generous supplies of synthetic resins.

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Nonfibrous Raw Materials in the Paper Industry in 1939*

Report of the TAPPI Nonfibrous Raw Materials Committee
By H. H. Hanson[1] and E. N. Poor[2]

Abstract

Again in 1939, the production of pulp and paper reached a new level—average production ratio increased from 72 per cent in 1938 to 85 per cent—expansion of the southern kraft industry continued with sharp advances during the last quarter.

The consumption of nonfibrous materials is estimated as 20 per cent above that in 1938, with substantial increases in domestic production since the beginning of the war. Perhaps the greatest changes have occurred in the salt cake market. United States imports have come principally from Germany with smaller amounts from Chile, Canada, and Belgium. Germany's exports have declined rapidly and may be stopped altogether by the British blockade. Chile, the second largest source of foreign salt cake, is an enigma in the market today. Producers of sodium nitrates in that country can turn out considerable quantities of cake as a by-product but are financed by British capital and have a special agreement with the European Salt Cake Association of which Germany is a member. The other countries may increase their export tonnages, but in normal times all of them, including Chile have seldom equaled one third of Germany's volume. This complicated situation may lead to increased domestic production from natural deposits in the western states and synthetic salt cake.

Sulphur prices remained stable during the year. The development of synthetic salt cake is expected to increase sulphur consumption.

Soda ash prices were firm during 1939. There was evident a further trend in reduction of sulphidity of kraft cooking liquors.

Lime prices were firm and consumption increased partly due to product exports to South America, formerly supplied by Germany.

Chlorine has not been affected by the war to date. There have been no new uses, but the chemical industry produced a greater volume of products with the use of chlorine.

Caustic soda prices, with the increased use of the electrolytic method of manufacture, were increasingly dependent upon demand and supply relationships of chlorine, a coproduct.

Any effects of war on rosin exports and domestic demand have been to a great extent mullified by large reserve stocks under government control.

Alum in the paper industry continued to represent approximately 40 per cent of total United States consumption. The war should have little effect as there have been practically no imports for the past 10 years.

Dye prices and supply have not been affected by the war.

The consumption of titanium pigments continued to increase with substantial price reductions during the year.

Wax size continued its growth—the war increased prices of scale and paraffin 2-fold.

Salt Cake

The overall consumption of salt cake for sulphate pulping in 1939 was not materially increased over the preceding year, and might have fallen far short of 1938 had not kraft pulp production increased sharply during the last quarter of the year.

Prices on imported salt cake advanced shortly after the start of hostilities in Europe. Such advances were due chiefly to increased ocean freight rates plus war risk insurance coverages. Supplies from the largest European salt cake producer were terminated abruptly, but tonnage continued to come forward from Belgium, Holland, England, and France. Domestic salt cake producers maintained their initial prices throughout the year. Some spot tonnage from domestic production was sold at above contract levels during the last quarter of the year.

Late in the year one large alkali producer announced the production of a salt cake substitute containing the theoretical percentage equivalents of Na_2O and S as found in 100 per cent sodium sulphate. This material was tried experimentally in several of the southern mills and a large production is announced for the coming year. Production was resumed at Salt Lake towards the close of the year, and it is reasonable to assume the some salt cake will be shipped from that point during the coming year. Two of the muriatic acid producers in the Southwest discontinued the use of sodium chloride as a source of chlorine with the result that no further quantities of by-product salt cake were produced. The salt cake from these productions, however, was small in comparison with the demand in the area served by them.

The fear of shortage due to curtailment of foreign deliveries at the start of the war caused those mills dependent upon foreign sources of sale cake to seek suitable substitutes. The product mentioned previously as produced by one of the large alkali manufacturers was tried. Combinations of gypsum and soda ash were also studied.

It is felt that imported salt cake will continue to move from Belgium, Holland, England, and France during 1940. Domestic productions have been increased and supplies appear to be adequate.

Sulphur

Preliminary estimates indicate an increase of about 15 per cent in the consumption of sulphur by the pulp and paper industry during 1939 as compared with that in 1938. This would mean an estimated 1939 consumption of about 200,000 tons. The price of brimstone or crude sulphur remained stable during 1939, at $16 a ton f.o.b. cars mines.

An important development in the paper industry in 1939 in which sulphur participated is worthy of

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[2] Vice Chairman TAPPI Nonfibrous Raw Materials Committee; Technical Director, W. C. Hamilton & Sons, Miquon, Pa.

note. In the kraft division, an alkali manufacturer recently announced the production of synthetic salt cake, which is expected to play an important part in the kraft pulp industry in the South. This synthetic salt cake, a manufactured product based upon a standard alkali and sulphur sintered together, takes its place with the achievements of other domestic producers in assuring adequate supplies of this important chemical raw material, of which half of our consumption in the past has been imported.

In the sulphite division of the paper industry, reduction of imports of sulphite pulp greatly stimulated domestic production and corresponding consumption of sulphur. Imports of sodium sulphate, a by-product of German potash operations, have been shut off, and part of these requirements are now being supplied by the use of sulphur and soda ash. The upturn in general business in the United States coincident with the outbreak of war led to a pronounced increase in sulphur consumption. Twenty-five years ago, when the American industrial system felt the first shock of the World War, the nation was dependent to a considerable degree upon foreign sources for the element sulphur. Since then the development of the domestic brimstone industry has enabled the United States to meet its own industrial needs for sulphur without dependence on other nations. The contrast today with 1913 is a striking one. In that year, the United States consumed the equivalent of 907,704 long tons of crude sulphur, of which only 230,112 tons or approximately one-fourth was domestic brimstone. Moreover, only 2.6 per cent of all the sulphuric acid produced in the United States was made from brimstone. Today, although the consumption of all forms of sulphur has more than doubled since 1913, approximately two-thirds of this consumption is domestically produced brimstone. Brimstone is the source of 60 per cent of the sulphuric acid used in this country. This development of the brimstone industry should tend to minimize the effect on sulphur price and availability during 1940 of whatever course the war in Europe may take.

Soda Ash

The advent of the European wars in 1939 caused a spurt in soda ash production which taxed manufacturing capacities for a time. Much of this was export business, but the domestic consumption also increased, particularly in relation to the kraft pulp industry, due to a shortage of salt cake supplies which resulted in increased prices.

The salt cake situation was favorable to soda ash not only in the use of replacement products such as sintered mixtures of soda ash and sulphur, combination methods employing soda ash and gypsum (calcium sulphate), and soda ash with niter cake (sodium bisulphate, $NaHSO_4$), but there was evident a further trend in reduction of sulphidity in kraft cooking liquors to produce lighter as well as easier bleaching pulps and to reduce obnoxious odors in line with increasing public agitation against air pollution. The trend toward replacement of salt cake with soda ash and mixtures containing soda ash is likely to be greater in 1940. One alkali plant in the South is understood to be installing additional equipment for a product in direct competition with salt cake.

Soda ash prices were stable in 1939, and there is no prospect of change in the first quarter of 1940. Increasing use of water transportation has resulted in lowered delivered prices and forced adjustments in freight rates in some sections. Soda ash remains in the position of being the cheapest source of alakali (Na_2O).

The continuance of the European wars during 1940 and possible higher taxes and higher labor costs in this country may result in increased manufacturing cost, which may, however, be offset to some extent if demand is sufficient to permit operating plants at capacity.

The reduction of kraft and soda pulp imports from abroad should strengthen the domestic industry and be reflected in increased soda ash consumption in 1940.

Lime

During 1939, especially the last three-quarters, the demand for chemical lime was very brisk.

The pulp and paper, steel, and chemical industries have been operating at capacity, and, therefore, the consumption of lime by these industries has been active and steady. The increase noted by the pulp and paper mills, we assume, was largely due to the delay in pulpwood shipments from the Scandinavian countries. We find considerable lime tonnage being consumed in the manufacture of a product going to South America, this product formerly coming from Germany.

In view of all this activity in the lime industry that has existed for the past nine months, lime prices have remained steady, fluxing lime for the steel trade increasing during the last half of 1939. Chemical lime prices remain very firm and show signs of strengthening especially if prices on raw materials increase during 1940, particularly coal.

Transportation gave way to little change during 1939. We do note an increase in the use of covered hoppers, especially among the larger consumers of chemical lime.

In conclusion there seems to be ample chemical lime tonnage to take care of the present demand and as to what prices will do in 1940 is uncertain at this time.

Chlorine

There was no indication in 1939 of any real change in the consumption of chlorine per ton of pulp for a given kind of pulp. The standard of quality remains very high as usual. There were no new uses in the paper industry, but the chemical industry turned out still more products either made with chlorine as a tool of manufacture or with chlorine in the goods. There is no substitute for chlorine in sight that will do what chlorine does in a pulp mill, and does well and cheaply.

Chlorine has not been affected by the war to date, except to the limited extent that in September and October of 1939 a fear that there might be a shortage of bleached pulp or some grades of white papers, or that prices would go swiftly upward, improved the demand for chlorine. It was soon apparent, however, that the United States of America is in a very different position in 1939 than it was in 1914. There is an ample supply of chlorine for all domestic uses and some reserves in capacity that are almost instantly available. There has been no important demand for chlorine for export and exports continue at about their usual rate. Aside from the small export tonnage going to Canadian pulp mills, this export chlorine appears to be small lots for the purification of water supplies and other sanitary uses.

Caustic Soda

Domestic and export sales of caustic soda were

above normal in 1939. Like salt cake, which is closely allied with hydrochloric acid, prices of caustic soda became increasingly dependent on the demand and supply relationships of chlorine as greater volumes were made by the electrolytic method which produces chlorine as a co-product. The disproportionate demand for chlorine evoked research towards developing methods of chlorine production eliminating caustic soda as a by-product. No such development has appeared as yet.

With adequate supplies available for current demands, much business in 1940 has been contracted for at present prices.

The consumption of caustic soda by the pulp and paper industry was:

48,000 tons in 1937
37,000 tons in 1938
47,000 tons in 1939

Silicate of Soda

The general improvement in paper and paperboard production which occurred during part of 1939 was naturally reflected in larger volumes of silicate of soda consigned to users in the paper and paperboard industries.

The volume of silicate of soda used in the paper mill beater remains unchanged except for such increase as has been due to improvement in business. There has been no important expansion in the use of silicate in this field, but those mills which have found silicate of soda helpful in the beater operation continue to benefit by its use, thus maintaining a consistent demand for silicate in this field.

No substantial change in the volume of silicate of soda used for deinking has been evident during the year.

The detergent properties of the sodium metasilicates have proved their value in a variety of cleaning operations in the paper mill. Noteworthy has been a substantial increase in the use of sodium metasilicate for rag washing.

The use of silicate of soda for water coagulation has been successful. The adaptation of the process to coagulation work in the paper mill will probably result in the use of substantial quantities of silicate of soda in the early future.

The volume of silicate used for adhesive purposes has substantially improved during the year 1939. One or more new adhesive grades have made appearance during the year and these new silicates quickly proved their worth as evidenced by the steady growth in demand for the new adhesives.

A program of research to examine the properties of corrugated paperboard and to determine the part contributed to the strength of the board by the adhesive was instituted at the University of Michigan early in 1938. The data resulting from the initial program which have been published, encouraged additional investigation and this work is being continued at the University of Michigan.

The war will undoubtedly have some effect upon many of the raw materials used in the pulp and paper industry, but silicate of soda is expected to be available in quantities sufficient to meet all demands. No pronounced changes are noted in the prices of silicate of soda.

Rosin

Consumption of rosin and rosin size is in the main keeping pace with the trends of paper and paperboard production.

Interesting developments in the form of synthetic rosins or resins for surface treatment of certain types of paper and paperboard have been perfected and received a wider use during the past year. More and wider usage in this field is looked for in the future as the consuming public demands characteristics resulting from applications of these protective coatings.

The principal feature affecting prices of rosin during the past year was the continuation of the conservation and loan program by the United States government. Under the plan, producers were permitted to borrow money on rosin which was then taken off the market. The conservation feature of the plan resulted in a greatly reduced production as compared with 1938, but in spite of this stocks have remained very burdensome. The loan program acted to stabilize prices, preventing extensive declines, while burdensome stocks have prevented prices from advancing unreasonably.

One important development, probably helped by the conservation program, has been a sharp reduction in the production of the cheaper, darker grades of rosin, such as *B, D, E, F,* and *G,* which has resulted in these grades becoming very difficult to obtain. This tendency is expected to become even more pronounced in 1940, and users of these grades will be forced to buy paler grades such as *H* and *I.* The government reserve stocks of the lower grades, taken in during past years under former loan plans, were exhausted early in 1939. It now appears possible that *H* will be the lowest grade produced in any quantity.

The announcement of a continuation of the conservation and loan program for 1940 indicates that artificial influences will continue making it even more difficult to foresee what the ultimate outcome will be.

The effects of the war on export and domestic demand are to a great extent nullified by the large reserve stocks held under government control and by the loan program under which any excess production can be taken off the market. While exports were disrupted following the outbreak of the war, shipments are being resumed as fast as ships become available, and thus far export demand appears to be in good volume with ample supplies available.

Alum

The use of alum in the paper industry continued to account for approximately 40 per cent of total United States consumption. Due to the European situation there has been a slight increase in demand, but it is not expected that any great changes will occur for imports have been practically nil for the past 10 years, and exports are normally less than 10 per cent of production.

High insoluble alum continues to hold a place in the paper industry and is claimed to be more economical than the standard grades. Research has been carried on to improve the quality. More investigation is needed concerning the effect of insolubles in forming nuclei for floc formation in sizing operations, such as has been done in the field of water treatment with favorable results.

Dyestuffs

The extensive improvement in business during the third and fourth quarters of 1939 brought with it an increase in consumption of dyestuffs in the paper industry approximately equal to the increase in the production of paper. Undoubtedly the disturbed condi-

tions abroad are largely responsible for the high rate of activity in the last quarter, and as the quarter ends it appears that the demand is leveling to normal.

In contrast to the situation in 1914, when importations of dyes and chemicals were cut off, there has been no actual shortage of dyes or chemicals since the outbreak of the present hostilities. This is because an American industry has been built up which is capable of supplying over 95 per cent of the country's dyestuff requirements; the balance being accounted for in specialties on which patents are held by foreign manufacturers.

Manufacturers have not found it necessary to advance prices and contracts are now being accepted for the first quarter of next year at prevailing levels. The situation for the balance of 1940 will be dependent on conditions which develop and cannot now be forecast. However, there is ample manufacturing capacity to fully supply the requirements of the paper industry.

During 1939, the production of papers for new uses has expanded and there has been an increase in the use of sulphur colors for the dyeing of twisting papers and other types of paper which require extreme fastness to water bleeding and good fastness to light. This has also created interest in the use of water repellents such as Aridex for treating paper seat covers and other woven paper products.

Clay

Production of domestic clay has increased substantially since 1929, with a decline in imports, most of which come from England. Under the Anglo-American trade agreement, duty on china clay was lowered from $2.50 to $1.75 per long ton for shipments in 1939, but imports showed little change up to September. With the beginning of the war, shipments to the United States dropped still further although aided by a decrease in sterling exchange.

These trade adjustments are accounted for by technical improvements in American clays. Continuous research has resulted in better processing methods and improved bleaching. Moreover, there is considerable evidence that whiteness and opacity depend mainly on *fineness* and this factor is now well controlled. All of these advancements give the American clay industry a dominant position in the field today.

For the war period to date open market quotations have remained virtually unchanged, and 1940 contracts have been written at 1939 levels.

Titanium Pigments

The use of titanium pigments continued to increase with consumer demand for papers possessing high opacity, brightness, or color. A continuously growing demand is anticipated, particularly due to the fact that they are approaching price brackets which are not prohibitive. During 1939, the carload price for titanium dioxide decreased to $260 per ton—a titanium-barium composite, $105—a titanium-calcium composite, $100 per ton.

There have been improvements in the pigments resulting in better opacity, brightness, and dispersion.

Zinc Sulphide Pigments

The recognized trend toward paper products of better color and brightness, as well as of greater opacity, has continued substantial interest in the four types of zinc sulphide pigments. It has been possible to make price reductions on all of these pigments during the past year, thereby giving the paper manufacturer greater value per dollar. This may open a still broader list of applications among paper products for these highly opaque pigments.

The European war should not have any effect on the availability of the zinc sulphide pigments. The raw material sources are in this country, and consequently there will be no shipping problem. Neither is there anything to fear from any highly accelerated business due to a war of greater action or broader scope, because ample manufacturing facilities are available.

Starch

Starch consumption increased with paper production. Prices remained firm throughout the year, and no changes are anticipated during 1940. A continued war would undoubtedly lead to increased prices. Research has led to improved quality but no new uses.

Rosin-Wax Sizes

The consumption of wax in water suspension in the paper industry has continued its growth in the past year. Some of this growth was in the way of integral sizing particularly in the use of wax emulsion in conjunction with rosin size in the beater.

The greatest development has been in the use of wax emulsions alone or in conjunction with starch, casein, and the like for surface applications. Prior to 1939 it was quite common to use wax emulsions on paperboards to improve scuff resistance, printing quality, finish, and water repellancy. There was also a considerable amount of paper being treated to produce high water repellancy such as butcher paper, drinking cup paper, etc. In the past year there has been marked development in the use of wax emulsions for increasing the resistance of papers and paperboards to penetration of other liquids such as printing ink, varnish, etc. This has been brought about partly by the demand for high gloss printing and varnishing.

No radically new emulsions have appeared in the past year, but considerable work has been done on modifications and improvements in established types. Gradually a technology of the various types of waxes and their applications is being built up.

The outbreak of the war in Europe caused a substantial change in the wax market. Scale wax which had been selling below $3.00 per cwt. all year rose rapidly and at the close of the year was quoted between $6.50 and $7.00 per cwt. Refined paraffin 124.126 amp. which held between $3.50 and $4.00 during the first 8 months rose to $6.00 to $7.00. Strangely enough scale wax sold slightly above refined paraffin of the same melting point at the end of the year.

Another feature of the year 1939 was the disappearance of montan wax from the American market. American manufacturers were not caught napping, however, and substitutes, lower in cost, were ready for the emergency. It is not expected that the paper industry will suffer any inconvenience as a result of the dirth of montan wax. Similarly a decrease in imports of other wax specialties have stimulated use of domestic products.

Plasticizers

Consumption of plasticizers by the paper industry and allied trades is seen to be continually on the increase. During 1939, substantial gains were recorded

by the manufacturers of the various agents in use. That these gains have mainly resulted from increased production of normally plasticized papers is well recognized. There is, however, a respectable percentage of increase which is due to the rapidly growing field of specially processed papers, tailor-made to meet exacting individual requirements. Most of these items owe their success to the intelligent use of softening agents. Outstanding in this group are plasticized body stocks for new types of coating and special bag and wrapping papers.

The trend, in general, has been toward the less expensive agents and, in many cases, to the substitution of technical grades in place of more highly refined grades. Considerable research, activated by keen competition has enabled these changes to be made without loss of quality.

No new plasticizers are known to have been adopted, although many substances, both old and new, have received thorough trial. Softening is still accomplished by incorporating one or more hygroscopic materials in the article to be softened, the softness being produced mainly by the added moisture retained, although some effect may be caused by a lubrication of the fibers. Efforts to use nonhygroscopic plasticizers have, so far as is known, been unsuccessful. There is a demand for such an agent which may in time be filled.

The effect of war time conditions on the prices and available supplies of plasticizing agents has been receiving considerable attention. Thus far no shortage of any of the more widely used materials has been felt. Glycerine is, of course, used in the manufacture of munitions. Stocks have been ample, however, and prices have not advanced. New processes for producing glycerine are believed to be available which should prevent any serious shortage from developing. Should a situation arise wherein glycerine would be exported from the United States to Europe for use in munitions, it would likely create a material change in the glycerine market here.

No shortage of sugar-type plasticizers is anticipated, for the reason that the experience gained from the last war resulted in increased production, with the effect that conditions at the present time are entirely different from what they were 25 years ago. Prices have not advanced to any extent, with the exception of the shortlived flurry at the start of hostilities in September. Cane sugar, from which invert sugar is produced, is subject to government control through legislation providing for production quotas and tariff control, and this has resulted in a large measure in price control. Any fluctuations in cane sugar prices are usually reflected in invert sugar prices.

Corn sugar and corn syrup are not subject to tariff regulations, but recently there have been discussions indicating the possibility of a Federal processing tax on products derived from corn. Such a tax would probably reflect in the price of these articles to the consumer.

Diethylene glycol and sorbitol are not in wide use in the paper industry. As yet there has been no indication of shortage or price advance.

Supplies of sulphonated oils, notably sulphonated castor oil, are doubtful and no prices are being quoted.

A comparison of current prices with those for the same period in 1938 shows:

Material	1938 (cents per lb.)	1939 (cents per lb.)
Glycerine	12 -12½	12 -13
Diethylene glycol	16	14½-15½
Invert sugar	4½- 4¾	4¼- 4¾
Corn sugar	3½- 3¾	no change
Corn syrup	2¾- 3	3
Sorbitol	15½-16	no change

Glue

Manufacturers report an increase in sales proportionate to paper production, both for surface and internal sizing.

Imports dropped somewhat in September but despite the unprecedented demand occasioned by the sharp increase in buying in September and October, no price advances were made. The level of prices, grade for grade, are approximately at 1935-1936 levels which were then the lowest since the Civil War.

Indications for 1940 are that with the continuation of the market activity, prices will undoubtedly rise as manufacturers do not have heavy surplus stock supplies. Production and consumption are nearer together than they have been for a long period of time.

Casein

Casein continues as the main adhesive material in paper coating, this source accounting for 70-80 per cent of domestic consumption.

Casein price increased substantially in October and November, 1939 for a combination of reasons. First, a relatively dry summer brought a curtailment of milk output, and at the same time, coated paper production increased. Furthermore, imports were practically negligible during the first part of this period. When prices increased from 8½ to 20 cents per lb.—tremendous imports arrived from Argentine due in part to a shortage.

Some hope for stabilizing prices lies in the proposed Reciprocal Trade Agreement with Argentine to consider reduction of tariff rates imposed in 1930. The results will undoubtedly determine future casein prices.

Contributors to Report

Salt cake	M. H. McAllister, F. W. Berk & Co., Inc., New York, N. Y.
Sulphur	D. B. Mason, Freeport Sulphur Co., New York, N. Y.
Soda ash	N. C. Weil, The Solvay Process Co., Syracuse, N. Y.
Lime	W. F. Swan, Standard Lime & Stone Co., Baltimore, Md.
Chlorine	S. W. Jacobs, Electro Bleaching Gas Co., New York, N. Y.
Caustic soda	American Paper & Pulp Assoc., New York, N. Y.
Sodium silicate	R. Morehouse, Philadelphia Quartz Co., Philadelphia, Pa.
Rosin	J. C. Dieffenderfer, Hercules Powder Co., Wilmington, Del.
	A. H. French, American Cyanamid & Chemical Corp., Valdosta, Ga.
Alum	H. J. Heffernan, Monsanto Chemical Co., Boston, Mass.
	R. M. Jumler, Bennett, Inc., Cambridge, Mass.
	L. B. Miller, Keasby & Mattison Co., Ambler, Penna.
Dyestuffs	C. F. Schaumann, E. I. DuPont & Co., Wilmington, Del.
Clay	American Paper & Pulp Assoc., New York, N. Y.
Titanium pigments	W. R. Willets, Titanium Pigment Corp., New York, N. Y.
	R. B. Quelos, Chemical & Pigment Co., Baltimore, Md.
Starch	J. Goldstein, Stein Hall & Co., Inc., New York, N. Y.
Zinc sulphide pigments	R. Davison, New Jersey Zinc Co., New York, N. Y.
Wax sizes	R. M. Kumler, Bennett, Inc., Cambridge, Mass.
	J. H. Fritz, National Oil Products Co., Harrison, N. J.
Plasticizers	N. R. Pike, The Nulomoline Co., New York, N. Y.
	J. F. Leets, Industrial Sugars Corp., Chicago, Ill.
Casein	American Paper & Pulp Assoc., New York, N. Y.
Glue	R. Tutt, Peter Cooper Corp., Philadelphia, Pa.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING MAY 25, 1940

SUMMARY

Cigarette paper .....1,620 cs.
Wall paper .....1 pkge.
Newsprint .....9,081 rolls
Printing paper .....17 cs.
Wrapping paper .....3 cs.
Filter paper .....1 cs.
Filter pulp .....10 bls.
Drawing paper .....7 cs.
Colored paper .....2 cs.
Baryta paper .....19 cs.
Surface coated paper and photo supplies.....515 cs.

CIGARETTE PAPER

Champagne Paper Corp., ——, Havre, 1,210 cs.
De Manduit Paper Corp., ——, Bordeaux, 3 cs.
Champagne Paper Corp., ——, Bordeaux, 200 cs.
American Tobacco Co., ——, Bordeaux, 198 cs.
Globe Shipping Co., ——, Bordeaux, 8 cs.
Globe Shipping Co., *Excello,* Marseilles, 1 cs.

WALL PAPER

J. W. Hampton, Jr. & Co., *Visgnes,* Antwerp, 1 pkge.

NEWSPRINT

——, ——, Cornerbrook, 456 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 359 rolls.
News Syndicate Co., ——, Comeau Bay, 7,941 rolls.
H. G. Craig Co., Inc., ——, Donnacona, 325 rolls.

PRINTING PAPER

Japan Paper Co., *Conti di Savoia,* Genoa, 17 cs.

WRAPPING PAPER

F. C. Strype, *Mercier,* Antwerp, 3 cs.

FILTER PAPER

——, ——, Bordeaux, 1 cs.

FILTER PULP

Reichel & Kaufmann Co., *Mercier,* Antwerp, 10 bls.

DRAWING PAPER

The Morilla Co., *Excello,* Marseilles, 7 cs.

COLORED PAPER

J. W. Hampton, Jr., & Co., *Visgnes,* Antwerp, 2 cs.

BARYTA PAPER

P. C. Zuhlke, *Mercier,* Antwerp, 19 cs.

SURFACE COATED PAPER & PHOTO SUPPLIES

Gevaert Co., of America, *Mercier,* Antwerp, 515 cs.

RAGS, BAGGINGS, ETC.

A. W. Fenton, Inc., *Extavia,* Alexandria, 297 bls. old cotton rags.
Castle & Overton, Inc., *Extavia,* Alexandria, 67 bls. old black cotton rags, 103 bls. old colored cotton rags.
J. T. Flannery, *Extavia,* Alexandria, 155 bls. old cotton rags.
——, *Extavia,* Alexandria, 354 bls. old bagging, 124 bls. old colored cotton rags.
Irving Trust Co., *Extavia,* Alexandria, 58 bls. hessian baggings.
W. Intner Co., ——, Shanghai, 142 bls. cotton waste.
W. J. Green Co., ——, Havre, 83 bls. rags.
E. J. Keller Co., Inc., ——, Havre, 70 bls. new cuttings, 126 bls. old bagging, 49 bls. paper stock.
Castle & Overton, Inc., ——, Havre, 230 bls. old bagging, 526 bls. rags.
Hollingsworth & Vose Co., ——, Havre, 683 bls. old bagging.
Castle & Overton, Inc., ——, Liverpool, 44 bls. new rags.
American Express Co., ——, Liverpool, 15 bls. old rags.
Levy & Son, *Mercier,* Antwerp, 127 bls. rags.
Continental Bank Trust Co., *Mercier,* Antwerp, 50 bls. flax waste.
A. Lowenthal & Co., *Oriente,* Havana, 2 bls. rags.

BOSTON IMPORTS

WEEK ENDING MAY 25, 1940

G. F. Malcolm, Inc., ——, Liverpool, 39 cs. tissue paper.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 25, 1940

E. J. Keller Co., Inc., *Extavia,* Alexandria, 64 bls. old cotton rags.

BALTIMORE IMPORTS

WEEK ENDING MAY 25, 1940

Congoleum Nairn Co., ——, Havre, 260 bls. old rags.
Loumar Textile By Products Co., ——, Havre, 140 bls. bagging.
E. J. Keller Co., Inc., ——, Havre, 172 bls. bagging.
Dixie Jute Bagging Corp., ——, Havre, 115 bls. bagging.

NORFOLK IMPORTS

WEEK ENDING MAY 25, 1940

Champagne Paper Corp., ——, Bordeaux, 399 cs. cigarette paper.
R. J. Reynolds Tobacco Co., ——, Bordeaux, 1,479 cs. cigarette paper.

NEWPORT NEWS IMPORTS

WEEK ENDING MAY 25, 1940

De Manduit Paper Corp., ——, Bordeaux, 400 cs. cigarette paper.

COMMITTEE LETS PAPER CONTRACTS

(Continued from page 9)

No. 352, Barton, Duer and Koch Paper Company, $18.85 per 100 sheets.
No. 360, Walker, Goulard Plehn Inc., 1.94 cents.
No. 361, Walker, Goulard Plehn Inc., 1.94 cents.
No. 362, Paper Corporation of U. S., 6.10 cents.
No. 363, Mathers-Lamm Paper Company, 5.28 cents.
No. 364, Walker, Goulard Plehn Inc., 2.44 cents.
No. 365, Walker, Goulard Plehn Inc., 2.44 cents.
No. 366, Mathers-Lamm Paper Company, 3.50 cents.
No. 367, Mathers-Lamm Paper Company, 3.50 cents.
No. 368, R. P. Andrews Paper Company, 5.19 cents.

Ohio TAPPI Guests of Orr Felt

The Ohio Section of the Technical Association of the Pulp and Paper Industry met at Piqua, Ohio, Saturday, May 25 with the Miami Valley Division of the Superintendents Association as guests of the Orr Felt and Blanket Company.

The afternoon was devoted to a trip through the felt mill and a golf tournament. Following dinner, O. P. Gephart of the Miamisburg Paper Company, presided as chairman and introduced John Koester, vice president of the Orr Felt and Blanket Company, who presented the speaker of the evening, Capt. W. Brown of the public schools of Dayton, Ohio, who talked on foreign affairs.

Among those present were E. Adlard, J. H. Allison, Marshall Barker, Ed. H. Bindley, W. B. Boggess, Weber Bot, John Burdsall, W. L. Casparis, T. M. Chemerys, John Cornell, Thage Dahlgren, Bob Dawson, Herbert Eiting, R. L. Eminger, Andrew Frazer, O. P. Gephart, John Hamm, H. H. Harrison, Paul Hauschilt, D. Hauselman, A. L. Hawk, F. R. Henry, Sam Hodge, Elmer Hoyle, Ken Jackson, John Koester, Louis Koester, M. Larick, Tom Latimer, Ed. Lunn, C. L. McKasson, D. Patrick, John L. Purdy, Geo. Ritterbush, L. H. Ritz, Chas. Rybolt, R. H. G. Smith, C. H. Suhs, John Schoerluke, J. W. Simpson, Earl Von Barger, and Myron Witmer.

Buy Paper Under Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 29, 1940—During the week ended May 11, the Government purchased $170,111.25 worth of paper and allied products under the Walsh-Healey Act as follows: $19,624.59 worth of newsprint paper for the Post Office from Paper Corporation of U. S., N. Y. C.; $67,600.00 (indefinite) worth of envelopes and jackets for the Post Office from Samuel Cupples Envelope Company, Inc., Brooklyn, N. Y.; $23,300.00 (indefinite) worth of envelopes for Post Office from U. S. Envelope Company, Springfield, Mass.; $18,000.00 (indefinite) worth of envelopes for Post Office from P. L. Andrews Corporation, Brooklyn, N. Y.; $30,300.00 worth of mimeograph paper for Procurement from Mathers-Lamm Paper Company, Washington, D. C.; and $11,286.66 worth of toilet paper for War Department from The Paper Service Company, Chicago, Ill.

Fiber Board Hearing Off

CHICAGO, Ill., May 27, 1940—A. H. Greenly, chairman of the railroads' Freight Classification Simplification Committee, announced today that the situation had caused canceling of scheduled hearings on reclassification of fiber board and fiber board shipping containers.

Hearings had been scheduled for June 4 in New York, June 11 in Chicago and June 18 in San Francisco. They would have dealt with revision of the classification "Rule 41."

Mr. Greenly said cutting off of pulp imports from Norway and Sweden imposed so many readjustment problems on the domestic paper board industry that it was felt advisable not to attempt to hold the hearings at this time. The committee represents all the nation's railroads.

To Hear Oral Arguments June 12

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 29, 1940—Oral argument on the record of the public hearing on the 40 cent minimum wage recommendation of Industry Committee No. 11 for the pulp and primary paper industry will be heard by Colonel Philip B. Fleming, Administrator of the Wage and Hour Division, June 12, in Room 3229 of the Labor Department Building, it has been announced.

At the same time it was announced that the Administrator will receive written briefs either in support of or in opposition to this recommendation on or before June 12.

Opportunity to submit briefs or to argue on the record will be limited to those who appeared at the public hearing held on May 20 and 21 before Henry T. Hunt, Principal Hearings Examiner of the Wage and Hour Division. Persons desiring to appear should notify the Wage and Hour Division on or before June 8, of their intention to do so, and the amount of time required to make their presentation.

Expands Bag Machinery Factory

H. G. Weber, president of the H. G. Weber Company, manufacturer of paper bag machinery, Kiel, Wis., announces that the new addition that he has planned for his factory building is under construction.

The Neumann Building Company of Kiel was awarded the contract, having been low in competitive bidding with several other construction companies and immediately started breaking ground on the site of the new addition.

The new construction will consist of one addition to the main building 62 feet by 46 feet and a wing off of this of 22 feet by 21 feet. The new additions will be one story of brick and iron structure. Improvements on the old building such as additional large skylights etc., will be constructed at the same time.

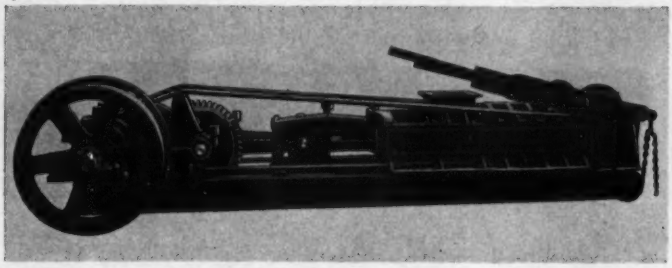
The decision by Mr. Weber to build and expand at the present time, despite the loss of foreign markets, is construed by many as a bright spot in the industrial picture of Kiel.

Perk-O-Liners, a New Coffee Filter

The General Paper Products Company, Boston, Mass., is manufacturing a new product, Perk-O-Liners, an improved coffee filter, made in the form percolating spout in percolators. The Perk-O-Liners of a cup, 1½ inches high and 3 inches in diameter, provided with a center cross to fit easily over the can be used in all sizes of percolators and dripolators. They are sold 40 in a package, which is new and attractive.

Accompanying each package are 40 filter discs, 2⅞ inch, American-made (formerly filtering materials were made in Japan), one to be inserted in the bottom of each Perk-O-Liner before making coffee. The disc filters every drop and the Perk-O-Liner cup holds the grounds. After the coffee is made, the Perk-O-Liner can be easily removed. The packages retail at 15 cents or special two for 25 cents. The dealer's price is $1.20 per dozen.

THE NEKOOSA SCREENINGS PRESS Solved The Kraft Screenings Problem



Ten years ago disposal of Kraft screenings was a problem. Today, thanks to the Nekoosa Screenings press, they may be profitably re-cooked into acceptable pulp.

All other equipment had failed to press the water from this material. Then came the development of the Nekoosa Screenings press and the problem was solved. It presses screenings approximately 40% A.D. so that they may be recooked without appreciable dilution of liquor. Requires very little power, maintenance and attention.

Nekoosa Foundry & Machine Works, Inc.

Nekoosa, Wis.

Bark Presses
Chip Cutters
Flat Screens
Agitators
Wood Peelers
Sulphite Mill Fittings
Special Equipment
Rolls
Deckers
Wet Machines
Cylinder Moulds
Wood Splitters
Water Marking Equipment

The Textile-Finishing Machinery Co.

New York Office
50 Church St.

Southern Office
Johnston Bldg., Charlotte, N. C.

Providence, R. I.

New York Paper and Pulp Market Review

Pulp Shipments From Sweden Expected As Soon As Guarantees Can Be Obtained To Assure Whole Cargoes Reaching This Country — Kraft Pulp Surplus In South Reported Not Large—Some Grades of Paper Up.

Office of the PAPER TRADE JOURNAL,
Wednesday, May 29, 1940.

Wholesale sales in the paper market are being maintained substantially above the level at this period last year. Reports from many manufacturers' representatives, jobbers, and general paper merchants during the current week indicate that sales in some grades of paper are about 10 per cent higher than for the corresponding week last year, and sales volume in a few grades of paper and paper board are above that figure.

The index of general business activity rose to 95.5 per cent for the week ended May 18, from 94.7 per cent for the preceding week, compared with 85.8 per cent for the like period last year.

Paper production of 235 mills was estimated at 92.0 per cent for the week ended May 18, compared with 79.3 per cent for 1939, with 69.7 per cent for 1938, with 91.2 per cent for 1937, and with 83.1 per cent for the corresponding period in 1936.

Paper board production for the week ended May 18 was 76.0 per cent, compared with 65.0 per cent for 1939, with 58.0 per cent for 1938, with 86.0 per cent for 1937, and with 67.0 per cent for the corresponding week in 1936.

The paper market continues to reflect a strong tone and while it is reported in some quarters of the trade that a substantial part of orders now being placed is forward buying in expectation of scarcity and higher paper prices later on, consumption is also reported as improving.

Kraft paper continues active with orders reported at a high level and with an active export demand. The paper board market is also active and orders in some grades of board are reported to be substantially above current production. No important price changes have been reported on any grade of paper or board this week.

Mechanical Pulp

No important change in the mechanical pulp market has been reported to date. Production continues at a good level and contract prices remain unchanged.

Chemical Pulp

No important change in the domestic or foreign pulp situation has been reported this week. Although shipments of wood pulp are expected to be made from Scandinavia, particularly from Sweden, as quickly as arrangements can be made to assure safe passage through the zone of hostilities, such negotiations have not yet been completed, according to the latest report. It is stated in some quarters that Germany has agreed to permit whole cargoes of pulp to pass through to this country, but that England has not yet agreed to this arrangement, for fear that some of the pulp consigned to this country may be re-exported to Germany.

Although some surplus kraft pulp is reported in the South, good authority states that the supply is not large and that most of the unbleached sulphate pulp now being produced is going into the manufacture of kraft paper.

Rags

Demand for some grades of rags continues moderately good, mill being largely interested this week in the medium high quality, with little trading in the high or the low grades. No important change in prices on any grade of new or old domestic rags has been reported to date.

Old Rope and Bagging

Mill buying of old rope continues steady with the market very firm under light supplies and the outlook uncertain for shipments from England and Scotland.

The old bagging market is rather quiet, but is reported firm. No change from prevailing market quotations have been reported this week.

Old Waste Paper

The old waste paper market is very firm, with mill buying active on some grades. White ledger stock has advanced at from 2.00 to 2.15, and old kraft, machine compressed bales, is up and currently quoted at from 1.75 to 1.85. No other changes have been reported to date.

Twine

The twine market is moderately active. Prices are a little higher on some grades and prospects for the immediate future are viewed in the trade as excellent for the season.

J. P. Burke To Attend Coast Meeting

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., May 27, 1940—Announcement is made here that John P. Burke, president and secretary of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, has left on a trip to Portland, Ore., where he will attend a meeting of mill owners and employees at which thirty-four pulp and sulphite concerns located in Oregon, Washington and California will be represented. He expects to be gone several days. The organization will endeavor to procure for its members an increase in salary and a week's vacation with pay which has been adopted already by some mills in this section.

Paper Imports From Japan Increase

Imports of paper from Japan increased in the last quarter of 1939 as compared with the third quarter of that year, according to a report issued by the Import Committee of the American Paper Industry. Imports are chiefly of Japanese type tissue papers, such as copying tissue, coffee filters, etc. The total for the year was about 600 tons, valued at $420,000.

KNIFE GRINDING SERVICE

The Oldest The Most Widely Employed The Newest

Precision ball bearing spindle, roller bearing knife mounting, universal range for any type of slitter knife, wet or dry grinding.

Extreme Accuracy—Pronounced Economy

Slitter Knife Grinder

Mammoth Traveling Wheel Grinder

For long knives, short knives in multiples, heavy knives, light knives, doctor blades, and all straight or bevel grinding, from the heaviest requirements in stock removal to the extreme in accuracy and light cuts.

Preloaded precision ball bearings, automatic lubrication. The very latest in all respects.

Send for free general catalogue covering all saw and knife fitting service—to the pioneers in the industry—

COVEL-HANCHETT CO., Big Rapids, Mich., U. S. A.

"NON-USERS ARE THE LOSERS"

TENAX FELTS

FINISH AND SPEED

AN ADVANTAGE WORTH FEATURING

More water removed from the wet web at the machines means less time to the stock pile and the shipping platform — the time spent by our engineers in perfecting TENAX FELTS for quick and effective WATER REMOVAL at the presses counts importantly toward their popularity. They meet today's high-speed production tests perfectly.

"Non-Users Are The Losers"

LOCKPORT FELT COMPANY

NEWFANE, N. Y.—U. S. A.

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, May 29, 1940.

BLANC FIXE—Prices on blanc fixe are firm and continue unchanged at prevailing market quotations. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is offered at $50 per ton, in bags, f.o.b., works.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand is reported moderate for the week. Prices remain unchanged. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are a little higher for the week. Standard domestic casein, 20-30 mesh, is quoted at from 11 to 12 cents per pound; 80-100 mesh, at from 11½ to 12½ cents per pound; all prices in bags, car lots. Argentina casein is currently quoted at 11 cents per pound; French casein at 15 cents per pound is nominal.

CAUSTIC SODA—Quotations on caustic soda are firm and conform to prevailing market levels. Demand is reported moderate. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market quotations. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is quoted at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and continue unchanged. Demand continues moderate. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with prices unchanged. "G" gum rosin is currently quoted at $4.50 per 280 pounds, gross weight, in barrels, Savannah. "FF" wood rosin is quoted at $4.50 per 280 pounds, gross weight, in barrels, New York. Seventy per cent gum rosin size is currently offered at $2.60 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Quotations on salt cake are firm and nominal and unchanged under a steady demand, with imports less in volume. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome salt cake at $16 per ton; all prices in car lots, f.o.b., shipping point. Imported salt cake, currently quoted at $20 per ton, is nominal.

SODA ASH—Prices on soda ash are firm and continue unchanged. Demand moderate. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Quotations on corn starch are a little lower for the week. Demand reported moderate. Pearl is currently quoted at $2.70 per 100 pounds; powdered starch at $2.80 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm with domestic and export demand reported good. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.60 per 100 pounds, in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market quotations. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $19 per ton.

TALC—Quotations on talc are unchanged for the week with demand reported moderate. Domestic talc is currently quoted at from $15 to $18 per ton, Eastern mines. Imported talc is offered at from $23 to $45 per ton.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.00	@	$5.50
Superstandard	4.62½	"	5.00
Northern Standard Wrapping	4.37½	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	"	—
White No. 1½	.70	"	—
White No. 2	.65	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.87½	"	—
Kraft	.80	"	—
Manila	.65	"	—
Unbl. Toilet, 1 M.	3.50	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	1.95	@	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. l. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds		Ledgers	
100% Rag Ext. No. 1	$39.10 @	$46.00	$40.25 @	$47.25
100% Rag	31.05 "	36.50	32.20 "	37.75
85% Rag	.... "	....	29.90 "	35.00
75% Rag	23.60 "	27.75	24.75 "	29.00
65% Rag	.... "	....	21.65 "	26.25
50% Rag	17.55 "	21.50	18.70 "	22.75
25% Rag	14.65 "	17.75	15.80 "	19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—
White, Assorted Items,
Delivered in Zone 1:

	Bonds		Ledgers	
No. 1	$8.95 @	$11.00	$10.10 @	$12.25
No. 2	8.05 "	9.75	9.25 "	11.25
No. 3	7.60 "	9.25	8.50 "	10.75
No. 4	7.30 "	9.00	8.50 "	10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—
White, Cased Paper,

Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	8.35	"	9.50
No. 2 Offset	7.70	"	9.00
A Grade E. F.	7.50	"	8.75
A Grade S. & S. C.	7.75	"	9.00
B Grade E. F.	6.95	"	8.00
B Grade S. & S. C.	7.20	"	8.25
C Grade E. F.	6.65	"	7.75
C Grade S. & S. C.	6.90	"	8.00
D Grade E. F.	6.40	"	7.50
D Grade S. & S. C.	6.65	"	7.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	$38.00	@	44.00
Dry	38.00	"	44.80

(Delivered)

No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.07½	@	4.15
Prime Qualities—			
Easy-Bleaching Sulphite	2.75	"	3.60
Strong Unbleached Sulphite	2.75	"	3.50

(On Dock, Atlantic Ports)

Kraft Bleached	3.37½	@	3.75
Kraft Light & Strong	2.50	"	3.60
Kraft No. 1	2.50	"	3.50

(F. o. b. Pulp Mill)

Kraft Domestic and Canadian	2.50	"	3.00

(Delivered)

Soda Bleached	2.90	"	—

Add 60 cents per short ton, dock charges for Albanay; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings			
New White, No. 1	7.00	@	7.25
Silesias No. 1	4.25	"	4.75
New Unbleached	6.75	"	7.00
Blue Overall	4.50	"	4.75
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.15	"	3.33

Old Rags

White, No. 1—			
Repacked	3.25	"	3.50
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.10	"	1.15
No. 2	.82½	"	.87½
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—